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Ambient Air Carcinogenic Vapors Improved Sampling and Analytical Techniques and Field Studies

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AMBIENT AIR CARCINOGENIC VAPORS
Improved Sampling and Analytical Techniques and Field Studies

by

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ABSTRACT

Improved techniques for sampling and analyzing volatile organic compounds in the ambient air were developed and evaluated. Emphasis was placed on techniques for halocarbons and other compounds known or suspected of being carcinogenic. Areas of investigation included (a) the evaluation of XAD-2, charcoal and Tenax GC sorbents for in situ formation of halogenated organics during the sampling of air containing chlorine and olefins; (b) the development and testing of a cryoheater module for a thermal desorptions inlet-manifold; and (c) the characterization and quantification of hazardous organic vapors in ambient air collected at several different geographical areas within the continental United States.

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SECTION 1

INTRODUCTION

The presence of halogenated hydrocarbons in the atmosphere is now a well-documented occurrence (1-6). Prior to the initiation of EPA Contracts No. 68-02-1228 and 68-02-2262, little effort had been devoted to the characterization of ambient air for the presence of mutagens and carcinogens. Under these contracts, many halogenated hydrocarbons were identified as well as other chemicals. Many of these chemicals are believed to be associated with anthropogenic sources. The actual health impact of the halogenated compounds in the environment, particularly at the concentrations which have been measured, is not completely understood.

Characterization in combination with comprehensive studies on the levels of carcinogenic agents in all media and the correlation of this exposure to body-burden and health effects on man should be conducted. A well-defined epidemiological approach to establish whether an associational relationship exists requires appropriate monitoring technology.

As a continuing effort to characterize the atmosphere for mutagens and carcinogens, this program addresses the further identification of many vapor-phase organics in the atmosphere from several industrial sites. Also, a solid waste disposal site where the chemicals are now being released into the environment was examined.

SECTION 2

CONCLUSIONS

A series of laboratory experiments was conducted to determine whether air containing both NO_x and ozone plus molecular halogen and olefins might convert olefins to chlorinated hydrocarbons on the surface of collection media. Studies on the potential in situ formation of halogenated compounds on XAD-2, charcoal and Tenax GC sorbents utilizing cyclohexene, ethylene, propylene, 1- and 2-butenes indicated that trace quantities of 1,2-dichlorocyclohexane, 2,3-dichlorobutanes (racemic and meso forms) and cyclohexene-2-one were detected on all three sorbents. The formation of halogenated compounds from 2-butene and cyclohexene was relatively independent of the presence of criteria pollutants.

A new cryoheater module was designed, fabricated and tested for the thermal desorption inlet-manifold system. The cryoheater module exhibits high trapping efficiency (>95%) for vinyl chloride as well as a series of hydrocarbons (n-pentane to n-hexadecane) when a purge rate of 10 ml/min is used with a 0.04 in i.d. x 0.064 in o.d. x 18 in Ni capillary trap. The heating rate for the cryoheater module on the inlet-manifold was examined. It required approximately 3 min to heat from -195°C to 250°C. The cryoheater module was found to be compatible with injection of samples onto a support coated open tubular (SCOT) column since the mode of cooling and heating the capillary trap maintained the chromatographic resolution.

Sampling and analysis of ambient air in household basements was conducted in "Old Love" Canal, Niagara Falls, NY. A total of 42 halogenated compounds was identified. Most of the halogenated hydrocarbons observed were specific to this site. Microgram levels for the individual halogenated compounds were detected.

A compilation of halogenated hydrocarbons which have been identified in ambient air samples from various geographical regions throughout the Continental U. S. was prepared. A few of the compounds were considered to be ubiquitous while the majority were found to be site-specific and associated with industrial activity in these areas.

SECTION 3
RECOMMENDATIONS

Three major phases of research should be pursued: (1) studies should begin on characterizing industrial atmospheres where known chemical synthesis, usage, or storage of nitrogen- and sulfur-containing compounds occurs; (2) accuracy and reproducibility studies for the collection and analysis of nitrogen- and sulfur-containing compounds from the ambient air should be conducted; and (3) information on nitrogen- and sulfur-containing compounds in industrial atmospheres for the specific purpose of classifying the chemicals according to site-specific and ubiquitous compounds should be acquired.

SECTION 4
PROGRAM OBJECTIVES

The general aim of this contract was to collect, characterize, and quantify hazardous vapor-phase organic pollutants at several locations throughout the Continental U. S. Specifically, the purpose was: (1) to place emphasis on the analysis for known or suspected mutagens and carcinogens and to assess the capability of the analytical method as a function of pollutant type with particular emphasis on carcinogens and mutagens; (2) to develop "pollution profiles" indicative of the individual sites sampled under this and previous programs and to establish a "pollution background profile" common to all sites studied; and (3) to prepare in graphic or tabular form all past and present findings on site pollution profiles.

Furthermore the objectives under this program were to conduct further studies on: (1) the potential in situ formation of halogenated compounds on XAD-2, charcoal, and Tenax GC sorbents; and (2) the design and perfection of a cryoheater module for the thermal desorption inlet-manifold system.

SECTION 5

STUDIES ON IN SITU FORMATION OF HALOGENATED COMPOUNDS ON XAD-2, CHARCOAL AND TENAX GC SORBENTS

INTRODUCTION

In a previous report we presented the possibility of in situ reactions occurring on the sorbent Tenax GC between molecular halogens (chlorine and bromine) and ozone, NO_x, ethylene, propylene, and 1- and 2-butenes (6). In these studies traces of 2,3-dichlorobutanes (meso and racemic forms) were detected as well as polar products. Furthermore, we have examined the potential formation of N-nitrosodimethylamine when NO_x, ozone and dimethylamine are sampled together using the Tenax GC sampling cartridge (4). Traces of N-nitrosodimethylamine were also detected.

Further studies have been conducted to determine whether chlorination of olefins would occur on XAD-2 and charcoal. The results of this study are presented in this section.

EXPERIMENTAL

The apparatus used to determine whether air containing ozone, nitric oxide (Matheson, Coleman, Bell), cyclohexene, and water might convert olefins to a chlorinated cyclohexane on Tenax GC (35/60 Applied Science, State College, PA) in the presence of molecular chlorine is depicted in Figure 1. Nitric oxide was measured into the stream with a rotometer and a metering valve from a supply tank which contained 48.9 ppm of NO in nitrogen (Scott Environmental). Ozone was generated by an ultraviolet lamp equipped with a sliding cover for obtaining different concentrations. Concentrations of NO, NO_2, NO_x and ozone were monitored with a Bendix NO_x analyzer (Model 5513802) and a Bendix Ozone analyzer. Gas phase titration was employed to calibrate these instruments. Intakes for these instruments were at the same point as the intake for the Tenax GC glass cartridge sampler (1.5 cm i.d. x 6.0 cm length) through which air was drawn by a

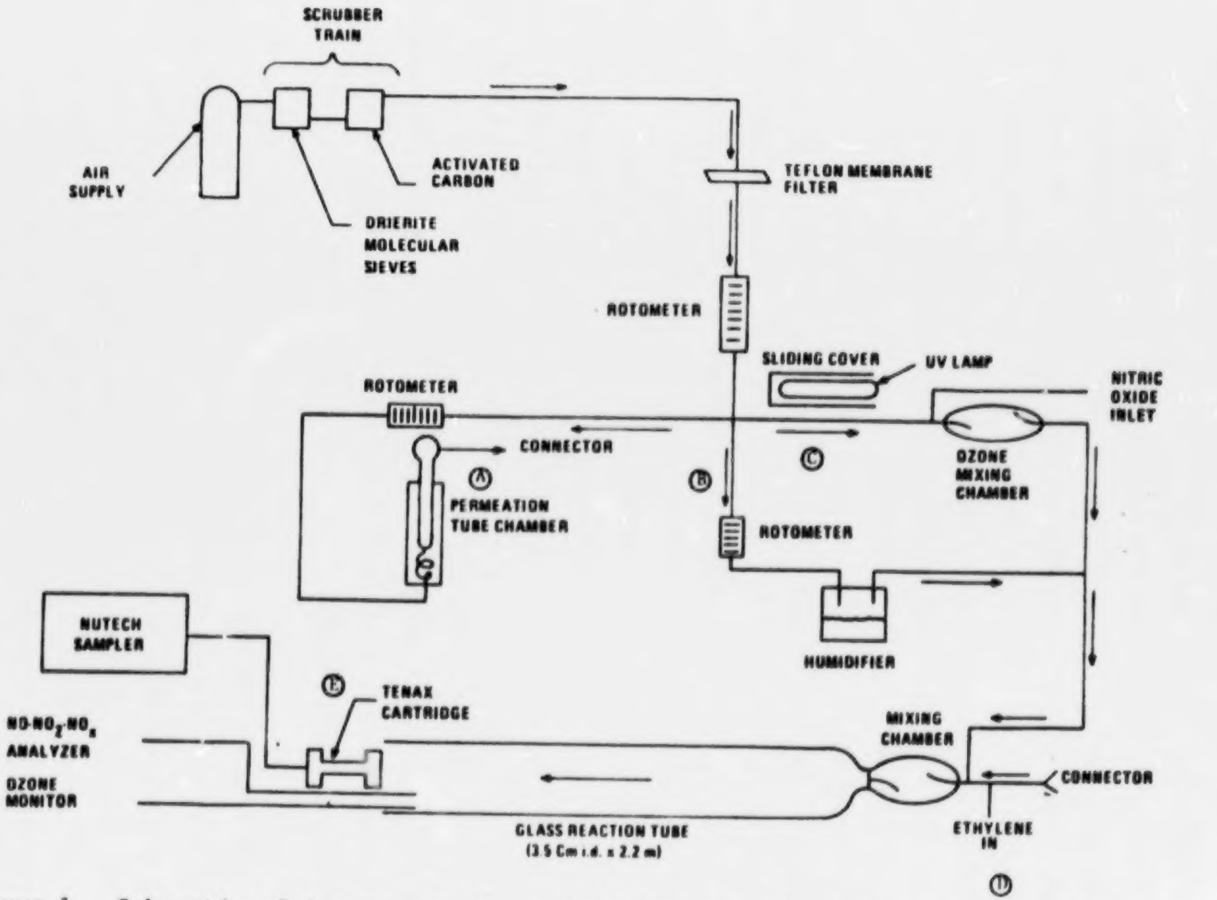

SCRUBBER TRAIN
AIR SUPPLY
DRIERITE MOLECULAR SIEVES
ACTIVATED CARBON
TEFLON MEMBRANE FILTER
ROTOMETER
SLIDING COVER
UV LAMP
NITRIC OXIDE INLET
ROTOMETER
CONNECTOR
Ⓐ
PERMEATION TUBE CHAMBER
Ⓑ
Ⓒ
OZONE MIXING CHAMBER
ROTOMETER
HUMIDIFIER
NUTECH SAMPLER
Ⓔ
TENAX CARTRIDGE
MIXING CHAMBER
CONNECTOR
NO-NO$_2$-NO$_x$ ANALYZER
OZONE MONITOR
GLASS REACTION TUBE (3.5 Cm i.d. x 2.2 m)
ETHYLENE IN
Ⓓ

Figure 1. Schematic of instrumentation and devices for examining *in situ* formation of halogenated hydrocarbons on solid sorbent surfaces.

Nutech Model 221A (Nutech Corporation, Durham, NC) sampler. The sampling cartridge and analyzer inlet tube were centered in the air flow of the reaction tube (Fig. 1).

Prior to its use Tenax was purified by Soxhlet extraction as previously described and thermally conditioned (6).

Replicate samples (duplicate) and blanks were analyzed by gas-liquid chromatography (glc) using a glass SCOT capillary coated with OV-101 stationary phase and flame ionization detection. After sampling, the cartridges were thermally desorbed as previously described and the sample introduced into the gas chromatographic column. The SCOT column was programmed from 30° to 240°C at 4°C/min. The carrier flow was approximately 2.5 ml/min. and the hydrogen and air were 35 and 200 ml/min., respectively. A Varian model 3700 glc was used.

The effect of ozone on tetrachloroethylene during sampling with charcoal (SKC) tubes containing 150 mg of sorbent was examined. Tetrachloroethylene (194 ng) was loaded on charcoal sampling cartridges and known levels of ozone, NO, and NO_2 in ambient air were sampled through the charcoal tube. A mixture of methanol and carbon disulfide was used to desorb the tetrachloroethylene for subsequent analysis. Glc with electron capture detection and a column (Pyrex, 2.5 mm i.d. x 1.8 m) of 0.2% Carbowax 1500 on Carbopack C was used. A Fisher Victoreen model 4400 glc equipped with a high temperature ^{3}Sc electron capture detector was used.

The potential chlorination of cyclohexene in the absence and presence of ozone and other standard pollutants was also studied using a sampling cartridge containing XAD-2 sorbent.

RESULTS AND DISCUSSION

Table 1 presents the series of experiments which was conducted utilizing different combinations of ozone, NO_x, NO, NO_2, chlorine, and cyclohexene. The volume of air stream that was sampled in all cases was 16 liters. In experiments No. 1-6 the Tenax GC cartridges were loaded with the olefin equivalent to a level of 90 ppb. In all of these experiments where the cyclohexene had been loaded on the Tenax GC cartridge no formation of 1,2-dichlorocyclohexane or other artifact was detected (Table 1). Experiments No. 8-16 utilized a cyclohexene permeation tube plus a molecular chlorine

Table 1. EFFECT OF O_3, NO, NO_2 AND MOLECULAR CHLORINE ON IN SITU REACTIONS WITH CYCLOHEXENE USING TENAX GC AS THE SAMPLING SORBENT

Experiment No.	Standard Inorganic Pollutants (added) ppb O_3	ppb NO	ppb NO_2	Cl_2 ppb	Cyclohexene ppb	1,2-Dichlorocyclohexane ng	Other "Artifacts"
1	0	0	0	104	90	0	-
2	100	0	0	0	90	0	-
3	100	0	0	104	90	0	-
4	700	0	0	104	90	0	-
5	0	300	350	104	90	0	-
6	220	0	200	104	90	0	-
7	0	0	0	104	0	0	-
8	0	0	0	0	818	0	-
9	0	0	0	104	818	100	-
10	160	0	0	104	818	110	cyclohexene-2-one
11	0	0	0	0	0	0	-
12	180	0	0	104	818	120	cyclohexene-2-one
13	0	0	0	104	818	110	-
14	140	0	0	104	818	120	cyclohexene-2-one
15	100	0	100	104	818	100	cyclohexene-2-one
16	0	100	0	104	818	100	-
17	0	0	0	104	818	110	-
18	100	0	0	0	818	0	cyclohexene-2-one

(continued)

Table 1 (cont'd)

Experiment No.	Standard Inorganic Pollutants (added) ppb O_3	ppb NO	ppb NO_2	Cl_2 ppb	Cyclohexene ppb	1,2-Dichlorocyclohexane ng	Other "Artifacts"
19	720	0	0	0	818	0	cyclohexene-2-one
20	720	0	0	104	818	120	cyclohexene-2-one

[a] Expts. No. 1-6 utilized Tenax GC cartridges loaded with cyclohexene and purged with Cl_2. Expts. No. 8-16 utilized a cyclohexene permeation tube in line with a Cl_2 permeation tube, and Expts. No. 17-20 involved loading of cyclohexene onto the Tenax GC cartridge and sampling in the presence of criteria pollutants as indicated with Cl_2. Sampling volumes were 16 ℓ in all cases.

permeation tube which were housed in the permeation tube chamber (point A, Fig. 1). Thus, the molecular chlorine plus cyclohexene entered and travelled together down the glass reaction tube to the Tenax GC cartridge at E (Fig. 1). In these experiments the quantity of cyclohexene was almost an order of magnitude greater than in the previous experiments.

In experiments 8-16 approximately 100-120 nanograms of 1,2-dichlorocyclohexane was measured when molecular chlorine was present with cyclohexene regardless of whether ozone, NO, or NO_2 was added.

A replicate cartridge representing the conditions under which 1,2-dichlorocyclohexane was expected to form was submitted for mass spectral analysis. The mass spectral data confirmed the presence of 1,2-dichlorocyclohexane. In addition, another compound was identified as cyclohexene-2-one. The formation of this compound, however, occurred only when ozone was also added to the air stream (Table 1).

Additional experiments were performed (Nos. 17-20) which involved the loading of cyclohexene onto the Tenax GC cartridge at a considerably higher concentration as indicated in Table 1. Again, 1,2-dichlorocyclohexene and cyclohexene-2-one were detected.

These experiments indicate that 1,2-dichlorocyclohexene as well as cyclohexene-2-one could be formed, particularly when higher concentrations of cyclohexene are used. This also probably accounts for the observations in the first series of experiments where formation of 1,2-dichlorocylcohexene and cyclohexene-2-one may have been below the detection limit for the flame ionization detection.

Traces of 2,3-dichlorobutane were found when charcoal (Table 2) or XAD-2 (Table 3) was used as the sampling sorbents.

Sampling of atmospheres containing 1 ppm ozone, 1 ppm NO or 1 ppm NO_2 with a charcoal tube containing tetrachloroethylene did not deplete the levels of tetrachloroethylene.

Table 2. EFFECT OF O_3, NO, NO_2 AND MOLECULAR CHLORINE ON *IN SITU* REACTIONS WITH OLEFINS USING SKC-107 CHARCOAL AS THE SAMPLING SORBENT

Experiment No.	Standard Inorganic Pollutants			Cl_2 ppb	Olefin Mixture[a] (ppb)	2,3-dichlorobutane ng (formed)
	ppm O_3	ppm NO	ppm NO_2			
1	0	0	0	90	B(744), P(577), E(581), B2(940)	60
2	1	0	0	90	" " " "	20
3	0	1	0	90	" " " "	20
4	1	0	1	90	" " " "	20
5	0	0	0	0	" " " "	0

[a] Olefin mixture: B = 1-butene, P = propylene, E = ethylene, B2 = butene-2. In each case 16 ℓ was sampled.

Table 3. EFFECT OF CRITERIA POLLUTANTS AND MOLECULAR CHLORINE ON IN SITU REACTIONS WITH OLEFINS USING XAD-2 AS THE SAMPLING SORBENT

Experiment No.	Standard Inorganic Pollutants			Cl_2 ppb	Olefin Mixture[a] (ppb)	2,3-dichlorobutane ng (formed)
	ppm O_3	ppm NO	ppm NO_2			
1	0	0	0	90	B(744), P(577), E(581), B2(940)	30
2	1	0	0	90	" " " "	20
3	1	0	1	90	" " " "	20
4	0	1	0	90	" " " "	20
5	0	0	0	90	" " " "	0

[a] See Table 2.

SECTION 6

DESIGN OF A CRYOHEATER MODULE FOR THE THERMAL DESORPTION INLET-MANIFOLD SYSTEM

INTRODUCTION

In previous reports a thermal desorption manifold was described and its performance presented (1-5). Additional research included examining coaxial and transaxial configurations of the capillary trap on the thermal desorption inlet-manifold (4). As part of the overall objective of this program on the improvement of methodologies for the collection and analysis of carcinogenic vapors further work was conducted on the perfection of the inlet-manifold system. Specifically a cryoheater module for the inlet-manifold was designed fabricated, and tested.

EXPERIMENTAL

The cryoheater module for the trapping of desorbed vapors from sorbent cartridges is depicted in Figure 2. Specifications were delineated to insure that specific performance criteria could be achieved. These were: a) a high trapping efficiency for all chemical classes of interest; b) the ability to quantitatively transfer vapors from the trap to a high resolution chromatographic column; c) injection of vapors without loss of chromatographic resolution; d) minimal decomposition or artifact formation during trapping and injection; and e) a simple and inexpensive device which could easily be fabricated.

The cryoheater module consists of an aluminum cylinder which is machined from a 2.54 cm o.d. aluminum bar. The internal diameter of the cylinder is bored to 0.957 cm to receive a Hot Watt heating cartridge (100 watts, 3.81 cm in length, 150 volts, model HS3715NR). The tolerance is 0.005 cm which is necessary to distribute the heat evenly throughout the cylinder. On the outside of the aluminum cylinder a threaded groove is machined to receive a 0.10 cm i.d. x 0.15 cm o.d. x 1 m nickel capillary trap. A groove is

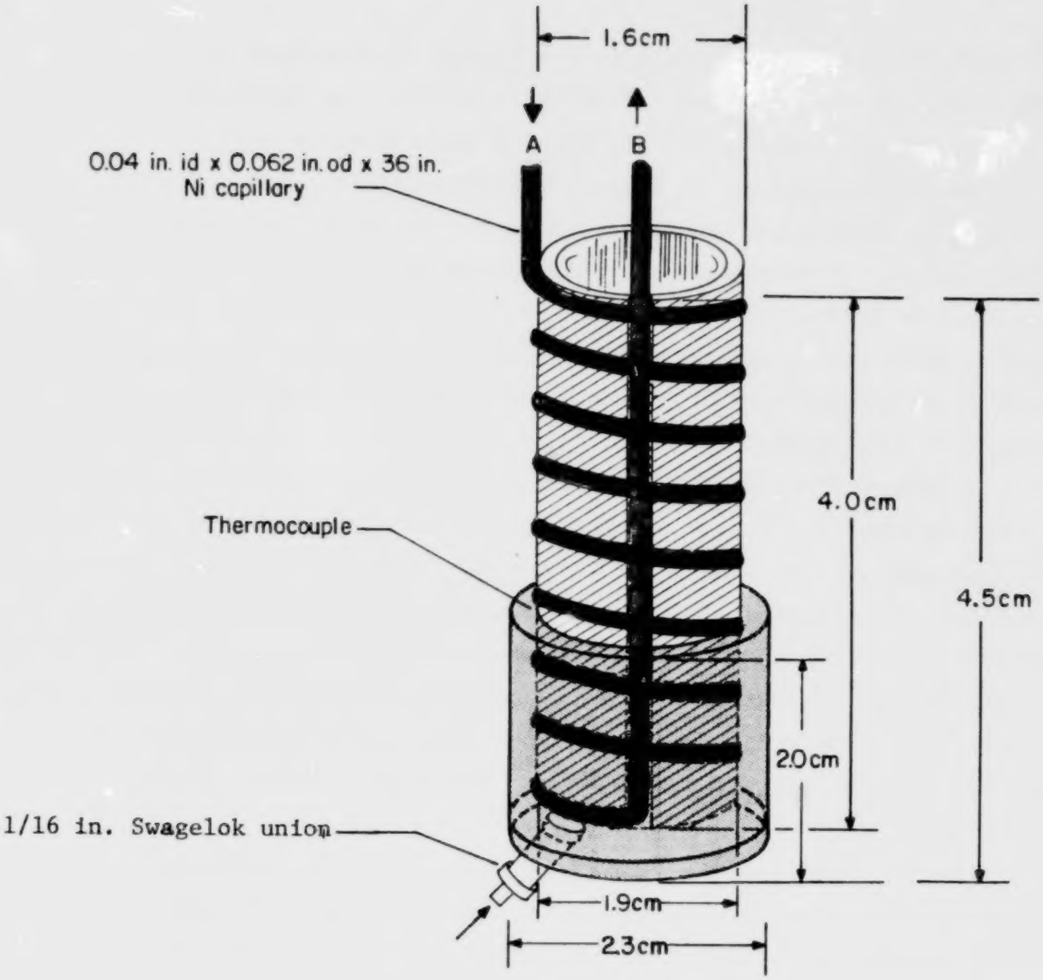

1.6cm
A
B
0.04 in. id x 0.062 in. od x 36 in.
Ni capillary
Thermocouple
4.0cm
4.5cm
2.0cm
1/16 in. Swagelok union
1.9cm
2.3cm

Figure 2. Cryoheater module for inlet-manifold

milled the length of the aluminum cylinder in order to accommodate one leg of the capillary trap. An aluminum cup is fabricated as depicted in Figure 2. A 1/16" Swagelok union was affixed to the bottom to feed liquid nitrogen into the cup.

During the cooling cycle nitrogen gas from a bottle is liquefied and delivered to the aluminum cup. Cooling to -196°C is achieved in approximately 180 sec. The desorption of vapors from sorbent cartridges is then initiated. After thermal desorption is complete (approximately 5 min.) the liquid nitrogen feed is terminated and the power to the Hot Watt cartridge is initiated (150 volts). A thermocouple (iron-constantan) is used to monitor the heating and cooling cycles.

A Varian 3700 gas liquid chromatograph equipped with a thermal desorption inlet-manifold system was used to evaluate the cryoheater module. The trapping efficiency of the cryoheater on the inlet manifold was assessed by loading a series of hydrocarbons and halogenated hydrocarbons onto the Tenax GC cartridge followed by thermal desorption with helium purging. A backup Tenax GC cartridge on the exhaust of the thermal desorption chamber was used to determine the trapping efficiency of the cryoheater module by subsequent analysis of the backup Tenax GC cartridge. Gas chromatography was conducted on a 100 meter glass SCOT capillary coated with OV-101 programmed from 30°C to 240°C at 4°C/min. The carrier flow was approximately 2.5 ml/min. and the hydrogen and air flows were 35 and 225 ml/min, respectively.

RESULTS AND DISCUSSION

Figure 3 depicts the heating rates for the cryoheater module. Heating from -196°C to +275°C was achieved in approximately 155 sec. when 100 volts was applied to the heating cartridge (Fig. 3, profile 1). At 115 volts the heating time was 125 seconds (Fig 3, profile 2). A differential heating rate was observed between the capillary trap in the aluminum cup and the capillary near the top of the cryoheater module (Fig. 3, profiles 2 and 3). After the heating cycle had been initiated for 40 seconds, the difference in temperature at these two points was approximately 100°C. During the cooling cycle a similar temperature differential was observed. Thus, the desired specifications were achieved, i.e., a gradient from one end of the capillary trap to the other. This differential heating rate between the

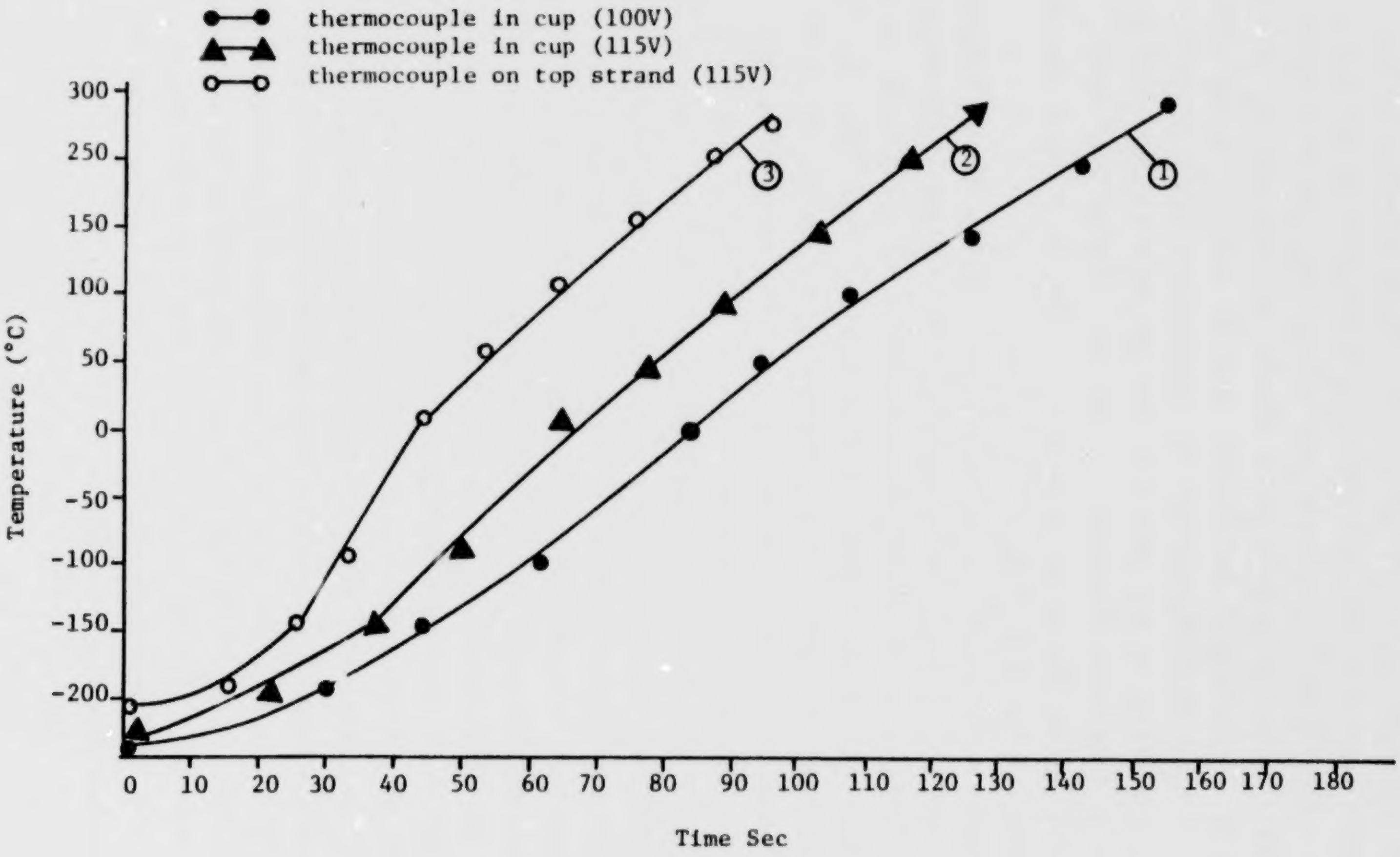


Figure 3 . Heating rates for cryoheater module on inlet-manifold.

two ends of the capillary trap is considered a feature of the system. Under normal operating conditions the desorbed vapors from the sorbent cartridge enter point A of the capillary trap which is at an elevated temperature. As the vapors gradually pass through the trap the temperature decreases until it reaches -196°C before exiting through point B. During the heating cycle the carrier gas (helium) for the capillary column enters point A and carries the vapors toward the cooler end of the trap which sharpens the band prior to its injection onto the chromatographic column. This feature is important; otherwise, the entire capillary trap would constitute dead volume during injection which ultimately would be expressed as broad peaks and low resolution.

The trapping efficiency of the cryoheater module for several compounds is given in Table 4. A series of hydrocarbons was examined to determine the percent retained by the cryoheater module using different purge rates from the thermal desorption chamber. A 45.7 cm nickel capillary trap was used in this study. A purge rate of 25 ml/min yielded high efficiencies for all listed hydrocarbons. Low trap efficiency was observed for vinyl chloride (boiling point -13°C) at a flow rate of 40 ml/min.

Further studies were performed with purge rates and the orientation of the gas flow through the capillary trap. The results of this study are shown in Table 5. These data indicate that in order to obtain a high trapping efficiency it is extremely important that the purge gas carrying the desorbed vapors enter at point A on the cryoheater module (Fig. 2). These data show that a gradual cooling of the gas is necessary to minimize aerosol formation in order to achieve high trapping efficiencies. Comparison of these data with those previously obtained in Table 2 indicate that the use of an approximately 45.7 cm nickel capillary trap with half of it wound in the liquid nitrogen cooled portion (cup) and the remainder separated by 3 turns and wound in the upper portion of the module is necessary to achieve a temperature gradient. The maximum trapping efficiency of the cryoheater module was observed utilizing a 0.04" i.d. x 0.064" o.d. x 18" length nickel capillary trap with a 10 to 15 ml per minute purge rate from the thermal desorption chamber for a period of 10 minutes.

Table 4. TRAPPING EFFICIENCY OF CRYOHEATER MODULE ON INLET MANIFOLD[a]

Chemical Class	Compound	% Retained	
		PR[b] = 40 ml/min	PR = 25 ml/min
Hydrocarbons	*n*-pentane	59	88
	n-hexane	68	91
	n-heptane	79	97
	n-octane	88	99
	n-nonane	93	99^+
	n-decane	94	99^+
	n-undecane	95	99^+
	n-dodecane	99^+	99^+
	n-tridecane	99^+	99^+
	n-tetradecane	99^+	99^+
	n-pentadecane	99^+	99^+
	n-hexadecane	99^+	99^+
Halogenated Hydrocarbons	vinyl chloride	77	93
	vinyl bromide	-	97
	chloroform	-	99
	1,2-dibromomethane	-	99
	chlorobenzene	-	99^+

[a] 0.04 in i.d. x 0.064 in o.d. x 18 in Ni capillary trap. Cooling time = 4 min (from RT). Heating time = 2.3 min (-196°C → 300°C).

[b] PR = purge rate (He) from thermal desorption chamber.

Table 5. TRAPPING EFFICIENCY OF CRYOHEATER MODULE ON INLET MANIFOLD[a]

Compound	% Retained PR[b] = 20 ml/min (5 min)	PR[b] = 10 ml/min (10 min)	PR[c] = 20 ml/min (5 min)
_n_-pentane	88 ± 3	98	67 ± 17
_n_-hexane	96 ± 2	99	74 ± 3
_n_-heptane	99 ± 1	99	89 ± 3
_n_-octane	99.5 ± 0.5	99	97 ± 4
_n_-nonane	99.5 ± 0.5	99	96 ± 2
_n_-decane	99.5 ± 0.5	99	98 ± 1

[a] 0.04 in i.d. x 0.064 in o.d. x 40 in Ni capillary trap.

[b] Purge gas (He) entered point A, see Fig. 2.

[c] Purge gas (He) was directed through point B, see Fig. 2.

SECTION 7

SAMPLING AND ANALYSIS FOR HAZARDOUS VAPOR-PHASE ORGANICS IN AMBIENT AIR

INTRODUCTION

Study sites were selected on the basis of the types of industrial activity. This is important in our pursuit of validation of the collection and analysis method which has been developed under this program. It is important to have background information on potential emissions in order to assess the collection and analysis capability of the method. By applying the method to a variety of ambient atmospheres associated with anthropogenic sources it has been our objective to characterize many different types of atmospheres, and to demonstrate the qualitative and quantitative capabilities of the Tenax GC sampling cartridge when used in combination with glass capillary/gas chromatography/mass spectrometry/computer methods (GC/MS/COMP).

As part of the overall endeavor, sampling and analysis was conducted in Linden, NJ near chemical and industrial sites, at the "Old Love" Canal site in Niagara Falls, NY, which constituted a disposal site for several chemical companies, and in Niagara Falls and Buffalo, NY at-large.

Love Canal is an old landfill used by several chemical companies back in the 1920's to dump chemical residues. Subsequently the area was covered and suburban homes constructed. In recent years due to corrosion of the drums the chemicals came to the surface and the residues have been leaching into the basements of homes. Local problems have been reported which include the presence of strong odors in the basements. There was also congressional interest from the 36th district.

The New York State Department of Environmental Conservation (NYDEC) has had the lead role in investigating and correcting the problem at the "Old Love" Canal site. Inadequate information was available to identify the contaminants present in the migrating material resulting in air and water pollution. The NYDEC has sampled to gather information to support state regulatory action. The EPA region II was concerned with the potential health implications particulately those associated with air contaminates in the enclosed basements.

Because of these problems, technical assistance was provided by scheduling a monitoring project in the "Old Love" Canal area of Niagara Falls, New York.

EXPERIMENTAL

The collection and analysis techniques used for vapor-phase organics in ambient air are described in Appendix A. These methods were used throughout this program.

As part of a scouting expedition in Linden, New Jersey, the solicitation of aerial photography service in Camden, New Jersey was performed. The use of aerial photography has several advantages, one of which is the ability to provide an overall perspective of the industrial layout and the potential sampling sites. By examination of aerial photographs, e.g., color prints and infrared slides, potential problems, if any, could be enumerated prior to sampling in the area. City maps were also obtained from the city planning department in Linden, New Jersey. Property maps were consulted to identify plant boundaries. The major boundaries found in the Linden area are listed in Table 6. The locations of these industries are depicted in Figure 4. Those of interest were Exxon, E.I. Dupont de Nemours, GAF, Linden Chlorine, American Cyanamid and FMC. During scouting for potential sampling locations strong chlorine odors were detected at the intersection of Grasselli Road and Tremly Point Road. Accessibility of the industrial complex ranges from one mile just southwest of the Goethals Bridge to 200 yards directly east of Tremly Point. The Rose Hill Cemetery was considered as a sampling site since it was located within a half mile of the large petroleum complex.

Table 7 and Figure 5 give the sampling protocol and the locations of sampling. Weather data were obtained from the Newark International Airport. Additional weather data were recorded at the sites using hand-held instrumentation as well as a Meteorological Research Incorporated weather station. During the first two days of the sampling trip sampling was postponed due to 8-1/4" of rain and excessive flooding of the area of interest.

Table 6. LISTING OF SOME CHEMICAL/INDUSTRIAL FIRMS IN THE LINDEN, NJ AREA

1. FMC - industrial chemicals, phosphates, MSP.
2. GATX - tank storage and transfer.
3. American Cyanamid - sulfuric acid, pesticides.
4. Cities Service - natural gas.
5. Tremely Point Industries - tank storage.
6. BP Oil Company - tank storage.
7. Linden Chlorine - Cl_2 and caustic soda
8. Linden Terminal Corporation - tank farm.
9. GAF - dyes, aniline
10. E. I. DuPont de Nemours, Inc. (Grasselli unit) - agricultural chemicals, ammonia, sulfuric acid.
11. Generating Station
12. Reichold Chemical - synthetic resins, maleic anhydride, acrylates.
13. Public Service Corp. - tank farm.
14. Mobil Oil Corp. - tank farm.
15. Gulf Oil Corp. - tank farm.
16. Texas Corp. - tank farm.
17. Merck Company - pharmaceutical, industrial chemicals, methanol, benzene.
18. Exxon - refinery and chemicals plus tank farm.

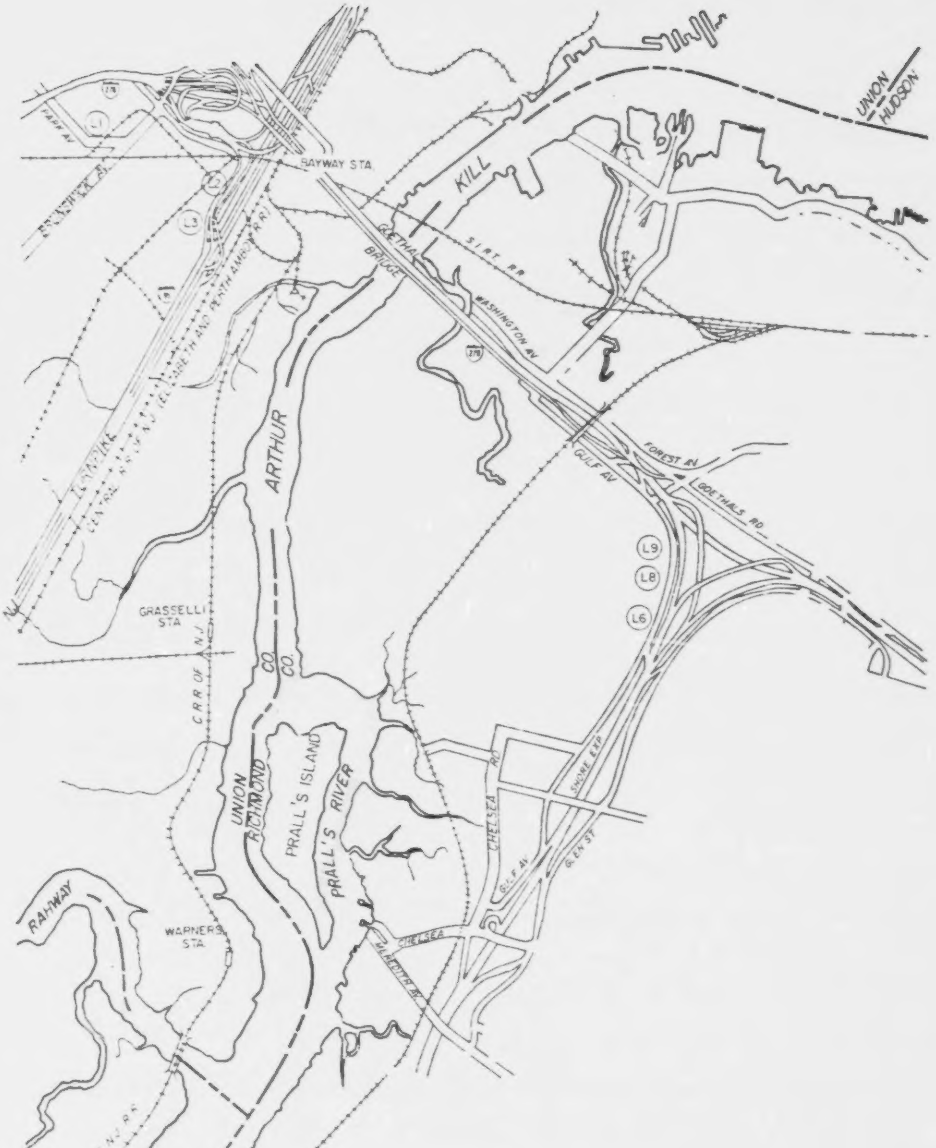

UNION
HUDSON
KILL
BAYWAY STA
GOETHALS BRIDGE
S I R T RR
WASHINGTON AV
278
PARK AV
L1
L2
L3
L9
L8
L6
TURNPIKE
CENTRAL RR OF NJ (ELIZABETH AND PERTH AMBOY RR)
ARTHUR
FOREST AV
GULF AV
GOETHALS RD
GRASSELLI STA
C R R OF N J
CO.
CO.
UNION
RICHMOND
PRALL'S ISLAND
PRALL'S RIVER
CHELSEA RD
SHORE EXP
GLEN ST
GULF AV
CHELSEA
RAHWAY
WARNERS STA
C OF NJ RR
NJ

Figure 4. Map of Linden, NJ, area depicting sampling sites.

Table 7. AMBIENT AIR SAMPLING PROTOCOL FOR LINDEN, NJ, AREA

Site	Sampling Period/Location	Sampling Time (min)	Volume Sampled (ℓ)	Remarks
Linden, NJ	P1/L1	60	46	11/9/77 60°F 58% RH 210°/6 kts
	P1/L3	70	75	11/9/77 65°F 80% RH 210°/6 kts
	P1/L2	60	59	11/9/77 65°F 81% RH 210°/6 kts
	P2/L4	120	80	11/9/77 62°F 59% RH 210°/6 kts
	P4/L4	60	95	11/10/77 60°F 95% RH 120°/6 kts
	P4/L5	60	66	11/10/77 60°F 95% RH 120°/6 kts
	P4/L6	60	67	11/10/77 59°F 95% RH 140°/6 kts
	P5/L7	60	78	11/10/77 62°F 94% RH 130°/5 kts
	P6/L8	75	111	11/11/77 44°F 34% RH 240°/14 kts
	P6/L9	62	39	11/11/77 45°F 34% RH 240°/14 kts

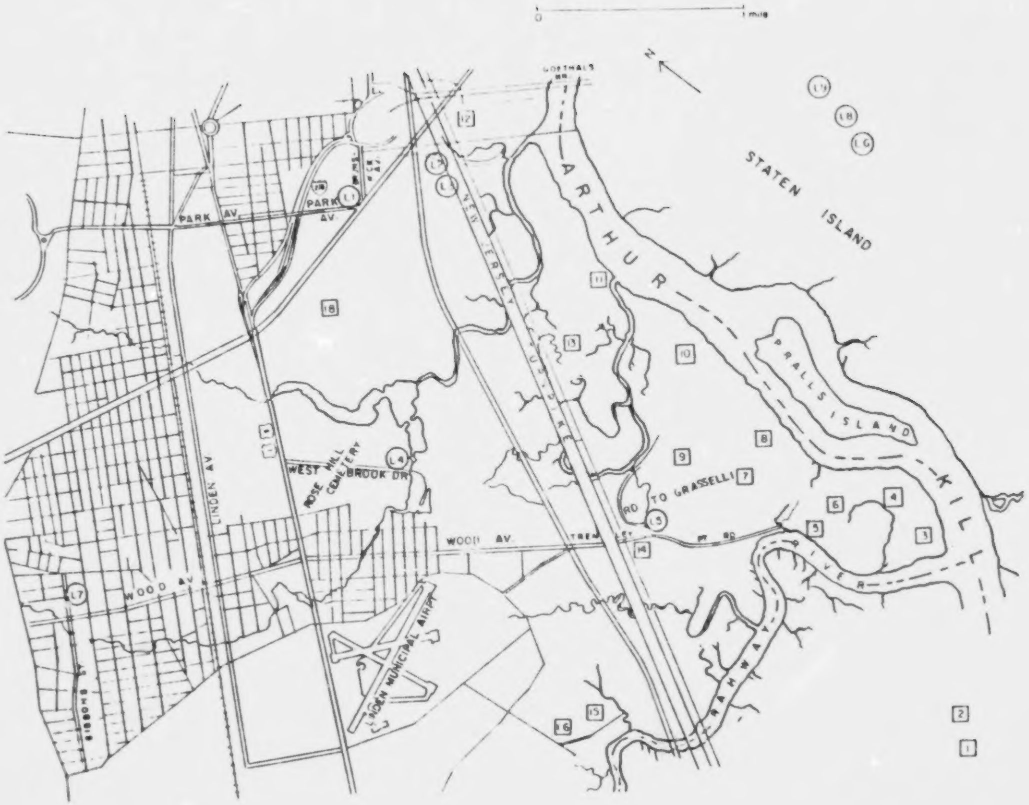

0
1 mile
N
GOETHALS BR.
STATEN ISLAND
L9
L8
L6
ARTHUR KILL
PRALLS ISLAND
RAHWAY RIVER
NEW JERSEY TURNPIKE
PARK AV.
PARK AV.
L1
L2
L3
L4
L5
L7
LINDEN AV
WOOD AV.
WOOD AV.
TREMLEY PT RD
RD TO GRASSELLI
WEST BROOK DR
ROSE HILL CEMETERY
LINDEN MUNICIPAL AIRPT
GIBBONS ST
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
18

Figure 5. Map of Linden, NJ, area depicting sampling site. O = sampling locations, ☐ = industry. See Table 6 for listings.

Samples were taken around the Exxon Chemical Complex (L1, L2, L3) and at this time the winds were light and variable with plumes from the predominant stacks traveling southeast. Both upwind and downwind samples were in good locations with respect to odors emanating from the area. Turnpike traffic was heavy with considerable diesel exhaust odors at L3 (Fig. 5). Other odors were detected at L2.

An afternoon sample was taken off West Brook Drive in the Rose Hill Cemetery (L4). Winds were predominantly southwest at 6 kts/hr. This sample served as a good background profile of the area minus the industrial pollution. A sample was also taken outside the gate entrance to Linden Chlorine. A security guard was consulted to determine whether the samples would be on plant property at the site chosen.

On Thursday winds were out of the southeast at 6 kts/hr. Sampling was conducted at the Rose Hill Cemetery (L4), just off Tremly Point Road (L5), and off Gulf Road on Staten Island (L6). The Staten Island samples were to represent the upwind sample; however, flooded highways prevented access to the desired area. This sample represents a background sample of Staten Island. Thursday evening a distant downwind sample from Tremly Point Industries was acquired in Linden (L7). Light rains occurred throughout the sampling period.

On Friday, winds were predominantly from the southwest at 14 kts/hr. Samplers were placed in downwind locations on Staten Island (Fig. 5, L8, L9) at a distance of approximately 1.5 miles from the industrial complex. Ammonia odors were detected during the sampling period as evidence that pollution from the vicinity of Dupont was carrying across the distance.

Because it was uncertain exactly what chemicals were dumped in "Old Love" Canal back in the 1920's, the sampling and analysis approach adopted was to sample for a large spectrum of chemicals that might be in the ambient air. For this reason, two sampling and analysis techniques were chosen: (1) for vapor-phase organics; and (2) for vapor-phase plus particulate organic matter. The sampling protocols and locations are given in Tables 8 and 9, and Figures 6 and 7, respectively.

Ambient air samples were taken between Tuesday, February 7, and Thursday, February 9th, in eleven homes and one elementary school along the "Old Love"

Table 8. SAMPLING PROTOCOL FOR VAPOR-PHASE ORGANICS IN AIR FROM HOUSEHOLD BASEMENTS AND SCHOOL ROOMS IN NIAGARA, NY

Sampling Location[a]	Sampling Time (min)	Sampling Volume (ℓ)	Remarks		
			Date Relative Humidity	Time Temp. (°C)	Odors[b]
1	198	268	2/9/78 52% RH	1051-1409 15°	6/6
2	135	95	2/7/78 49% RH	1035-1250 22°	10/9.5
3	235	258	2/7/78 66% RH	1055-1450 18°	9.5/10
4	207	300	2/7/78 68% RH	1130-1457 16°	6/6
5	562	597	2/8/78 50% RH	1013-1935 17°	8/8
6	212	140	2/8/78 44% RH	0923-1255 19°	6/7
7	186	134	2/9/78 49% RH	0910-1216 13°	1/1
8	192	283	2/7/78 61% RH	1155-1507 18°	1/1
9	151	219	2/9/78 37% RH	0950-1221 17°	1/1
10	200	263	2/8/78 48% RH	0945-1305 22°	1/2
11	154	226	2/8/78 31% RH	1038-1312 18°	1/1

(continued)

Table 8 (cont'd)

Sampling Location[a]	Sampling Time (min)	Sampling Volume (ℓ)	Remarks		
			Date Relative Humidity	Time Temp. (°C)	Odors[b]
12A	480	43	2/8/78	0855-1655	1/1
12B	520	47	22% RH	0845-1725	
				21°	
13A	490	44	2/8/78	0830-1460	
13B	490	66	25% RH	0832-1642	1/1
13C	536	72		23°	

[a] Each household basement was designated as a sampling location.

[b] Using a scale of 1-10, subjective evaluations were made for presence of chlorinated and general odors in basements.

Table 9. SAMPLING PROTOCOL FOR COLLECTION OF VAPOR-PHASE ORGANICS AND PARTICULATE ORGANIC MATERIAL ON POLYURETHANE FROM AIR IN HOUSEHOLD BASEMENTS IN NIAGARA, NY

Sampling Location	Sampling Time (min)	Sampling Volume (ℓ)	Remarks	
			Date	Time
1	497	94,049	2/9/78	1051-1908
2	558	116,067	2/7/78	1025-1943
3	514	100,369	2/7/78	1056-1930
4	513	100,173	2/7/78	1130-2003
5	562	109,742	2/8/78	1013-1935
6	600	124,803	2/8/78	0923-1923
7	580	120,643	2/9/78	0912-1852
8	500	94,097	2/7/78	1155-2015
9	566	110,523	2/9/78	0934-1900
10	643	125,559	2/8/78	0945-2028
11	553	104,072	2/8/78	1038-1951

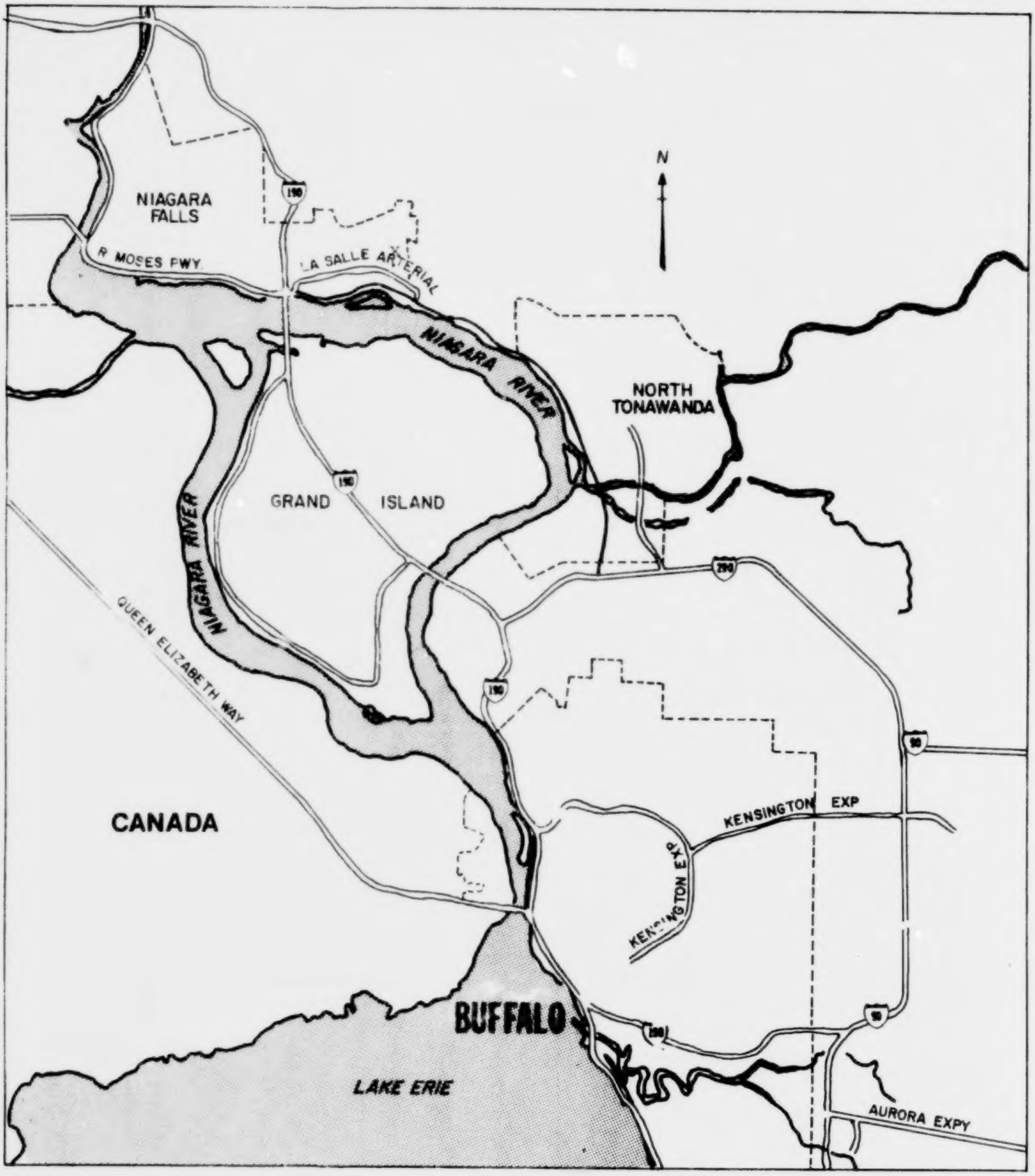

N
NIAGARA FALLS
R MOSES PWY
LA SALLE ARTERIAL
190
NIAGARA RIVER
NORTH TONAWANDA
GRAND ISLAND
NIAGARA RIVER
190
290
QUEEN ELIZABETH WAY
190
90
CANADA
KENSINGTON EXP
KENSINGTON EXP
BUFFALO
190
90
LAKE ERIE
AURORA EXPY

Figure 6. Map of Buffalo and Niagara Falls, NY, area (x = sampling site near LaSalle Arterial).

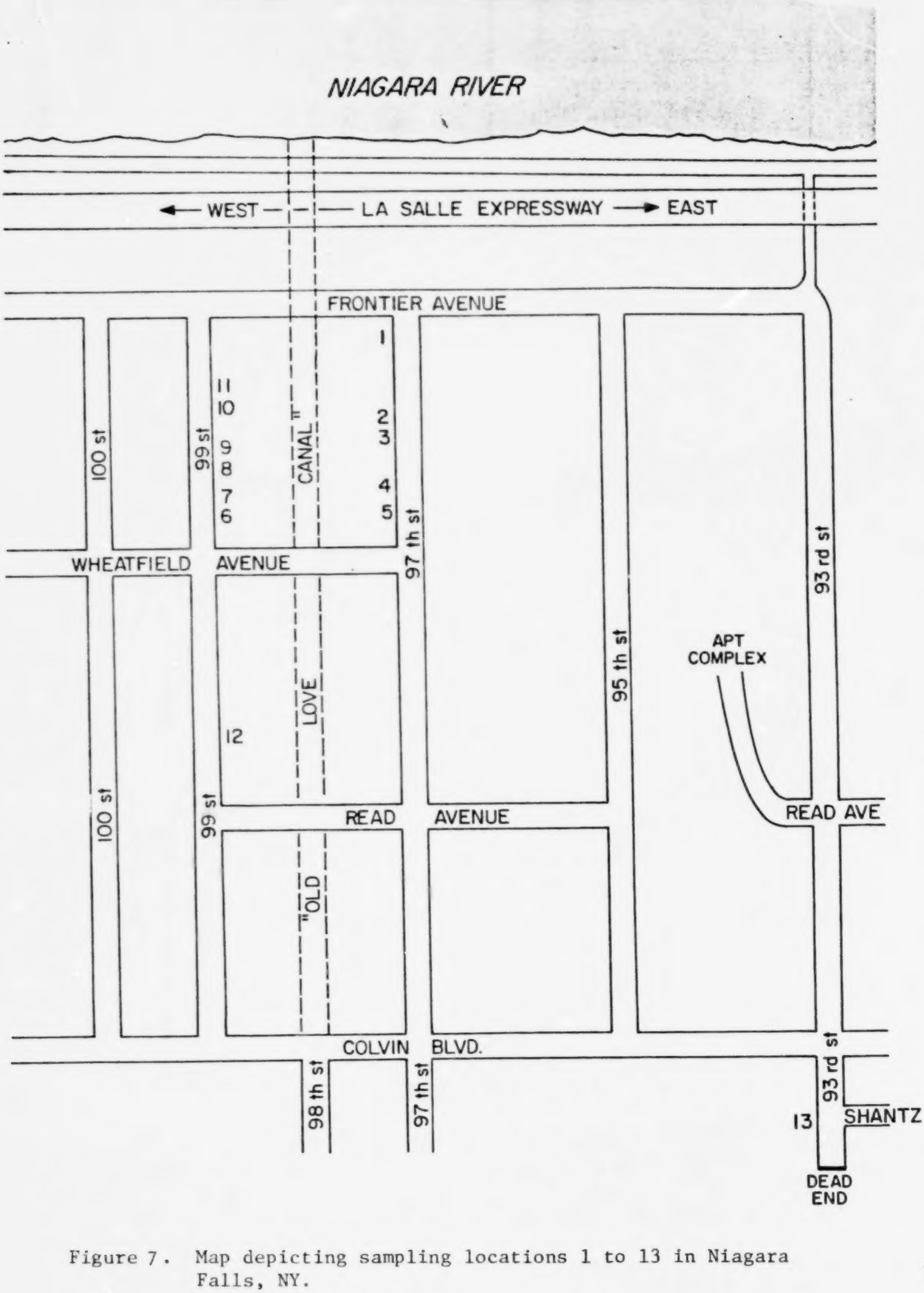

NIAGARA RIVER
WEST
LA SALLE EXPRESSWAY
EAST
FRONTIER AVENUE
1
11
10
2
3
9
8
4
7
6
5
100 st
99 st
"LOVE CANAL"
"OLD
97 th st
WHEATFIELD AVENUE
95 th st
93 rd st
APT COMPLEX
12
READ AVENUE
READ AVE
COLVIN BLVD.
98 th st
13
SHANTZ
DEAD END

Figure 7. Map depicting sampling locations 1 to 13 in Niagara Falls, NY.

Canal area of Niagara Falls, New York, and in one elementary school in a nearby neighborhood. The trip was coordinated with EPA Region II office in Edison, New Jersey, the New York State Department of Environmental Conservation and the Niagara County Health Department. Concomitant with the sampling of ambient air, the NYDEC group was responsible for taking water samples from the sump pumps. NYDEC took all but two of their water samples on the first day; thus, only five of the eleven homes were sampled concurrently for water and air.

The collection and analysis techniques employed utilized Tenax GC and polyurethane foam plugs as adsorbents. Samples using Tenax GC were acquired with Nutech Model 221A and DuPont personnel samplers, while the samples collected on polyurethane foam (PUF) employed a Nutech High-Vol sampler. In the basement of each home, sampling with Tenax and PUF substrates was performed side-by-side near the sump pumps. Ambient air samples taken with the Tenax cartridge generally covered a 2-3 hour period while the High-Vol sampler was operated at a maximum flow rate (∿200 ℓ/min.) over a 8-10 hour period. DuPont personnel samplers were used at each school and were operated at maximum rates (∿100 ml/min/cartridge) for 8 hours.

Beginning with the vapor-phase organics collected on Tenax GC (Table 8), the sample taken at location 1 was in the corner of a basement of a concrete floor near an uncovered sump. There was a moderate chlorinated odor coming from the sump area. A water sample had previously been taken from this sump by NYDEC on Wednesday, February 8th. In the basement at L1 a washer/dryer and a furnace were present. The house appeared to be 25 years old and had been moved to the present site. Therefore it was unknown how long the house had actually been located on the "Old Love" Canal.

At L2 a strong chlorinated odor was detected throughout the basement. The floor was made of concrete and on it were located a washer/dryer and a furnace. In addition a dog was kept in the basement and at one time the owner's son's bedroom was located here until the odor apparently became too strong; the bedroom had to be moved upstairs. The sump pump was uncovered in one corner of the basement and the house seemed to be 20-25 years old.

In the basement of the third location (L3) a strong chlorinated odor mixed with an odor of cat litter was apparent. The basement floor was made of concrete and on it was a washer/dryer and a furnace. A sump was uncovered in the corner near the washer. The house appeared to be 10-15 years old and was for sale.

The fourth sample was also from a basement which contained a moderate chlorinated odor in the air. The uncovered sump was located in one corner and on the concrete floor was a washer, dryer, and a furnace. This house appeared to be at least 20 years old.

The fifth sample was taken in a basement which contained only a moderately strong chlorinated odor from the sump area. The sump was enclosed in a tool cabinet and emitted no odor when the cabinet was closed. The floor of the basement was tiled and was arranged as a recreation room. A water sample from the sump and an ambient air sample were concurrently taken. This home appeared to be 15-20 years old.

The basement at L6 did not emit odors. The sump was uncovered in a corner of a concrete basement floor. Towards the end of the sampling period (Hi-Vol), a slight chlorinated odor was detectable. A washer, dryer and furnace were present. The resident of this household had lived along the canal since the 1920's and recalled when dumping of the chemicals occurred during the war years by the industry. The household inhabitant also recalled several instances when the chemical waste caught fire and burned for several days. The present home is approximately 30 years old.

The seventh sample was taken in a basement where no apparent odor from the sump could be detected as it lay open in the corner. In the basement was a washer, dryer and a furnace. The house was approximately 20-25 years old.

The eighth and ninth samples were taken also in basements where no apparent odor could be detected when the sumps were uncovered. A washer, dryer and furnace were also present. The houses appeared to be 20-25 years old.

The ninth sample was taken at a home in the basement where there was no sump present. The floor was made of concrete. A washer, dryer and furnace were present. Also kept here was a pet animal. Even though there was no apparent odor in the basement, the owner complained of strong odors during the warmer months of the year. This house was approximately 20-25 years old.

The tenth sample was acquired from a basement which had undergone remodeling. The floor was tiled and was covered with sawdust. There was no odor from the sump since it was enclosed. This house represented one of the newer homes sampled and it was approximately 10 years old.

The last ambient air sample (L11) was taken in a basement which also contained a sump along one wall. However, there were no odors coming from the sump area. The basement had a tiled floor and was divided into two sections, one used as a utility room and the other as an office. Also kept in the basement was a pet animal. The owner of this residence remarked that during the summer, explosions underground along the canal could be heard. The house appeared to be no more than 10 years old.

The remaining ambient air samples collected on Tenax GC cartridges were taken at the 93rd and 99th Street schools. Air samples were collected in two gymnasiums and a classroom. During the sampling, no chlorinated odors could be detected.

Sampling was also conducted in the Niagara Falls and Buffalo, NY, areas. The sampling protocol is given in Table 10 and the respective locations in Figure 8 and 9.

RESULTS AND DISCUSSION

Linden, NJ

Qualitative Analysis--

A detailed listing of the vapor-phase organics which were identified in ambient air samples from Linden, NJ, is given in Appendix B.

Quantitative Analysis--

Table 11 presents the estimated levels of halogenated hydrocarbons in ambient air samples from Linden, NJ. Of all the halogenated organics detected, the compounds in Table 11 are considered ubiquitous.

"Old Love" Canal, Niagara Falls, NY

Qualitative Analysis--

A total of 42 halogenated compounds was identified (Table 12). Among the halogenated hydrocarbons were four site-specific compounds. These were pentachlorobutadiene, 1,3-hexachlorobutadiene, 1,2-dibromoethane and 1,2-dichloropropane. The remaining halogenated hydrocarbons were present in trace quantities and are considered ubiquitous, *i.e.*, they normally are

Table 10. SAMPLING PROTOCOL FOR NIAGARA FALLS, BUFFALO, NY AND VICINITY

Sampling Area	Sampling Location	Volume (ℓ)	Time (min)	Remarks	
Niagara Falls	Packard Viaduct (P1/L1)	103	25	7/9/78	1800-1825
Niagara Falls	Packard, E. of Pine (P1/L2)	112	27	7/9/78	1808-1835
Amherst	I-290, Brompton St. (P1/L3)	38	101	7/9/78	1713-1854
Amherst	I-290, Brompton St. (P1/L4)	29	92	7/9/78	1732-1904
Buffalo	I-290, River Rd. (P2/L9)	36	47	7/10/78	1715-1802
Buffalo	Edgar St., Irene St. (P2/L10)	56	20	7/10/78	1730-1750
Niagara Falls	On Viaduct across from NC1 (P3/L5)	104	30	7/11/78	1215-1245
Niagara Falls	Packard St, "New Rd" (P3/L6)	116	35	7/11/78	1225-1300
Cheektowaga	3470 Genesse (P4/L12)	124	71	7/12/78	1040-1200
Cheektowaga	3440 Genesse (P4/L13)	60	65	7/12/78	1051-1156

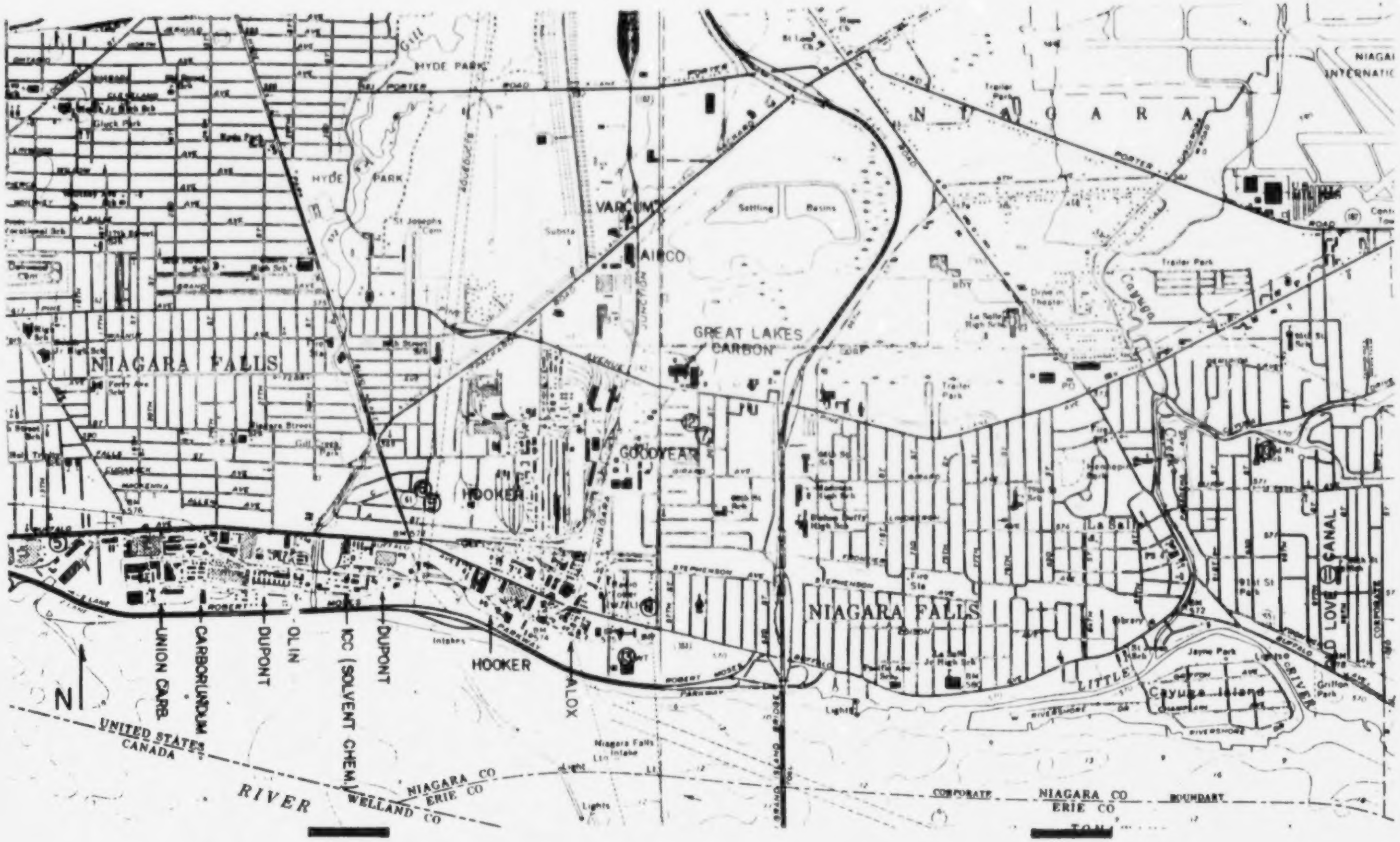
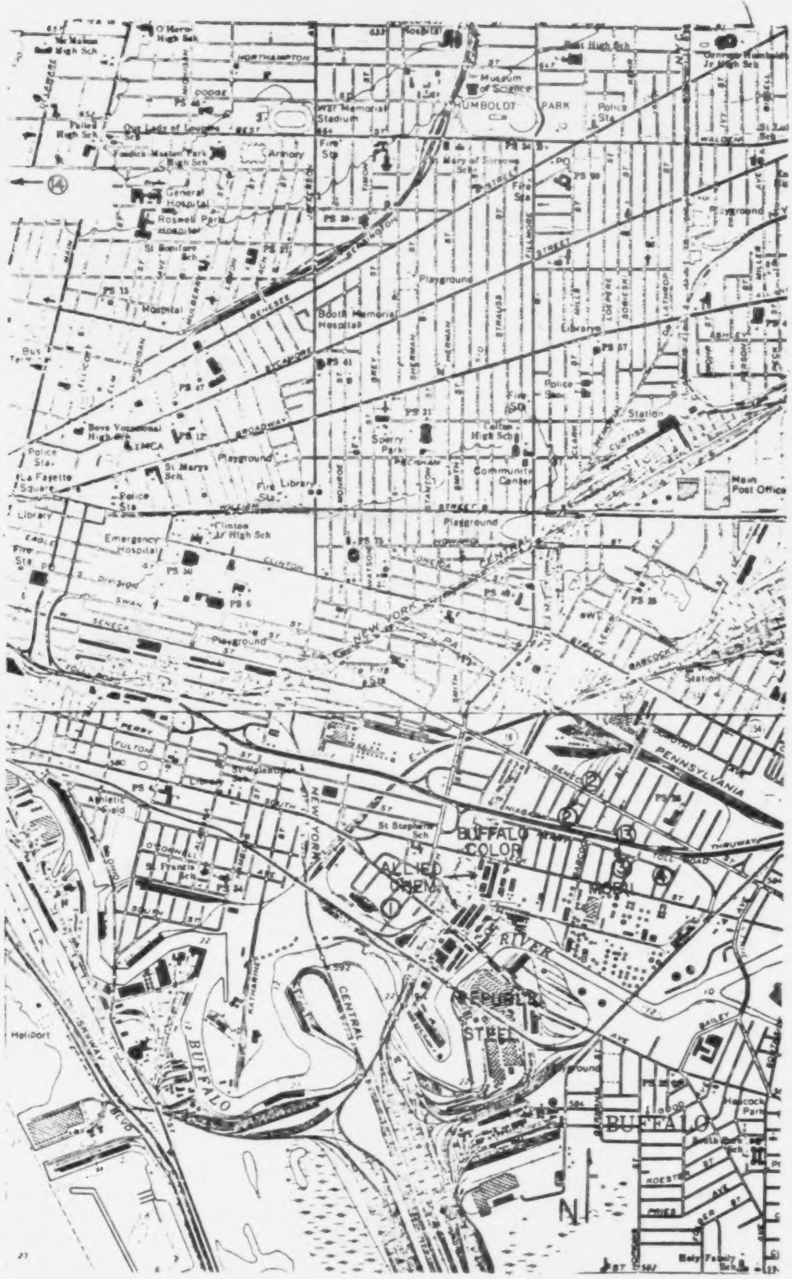

HYDE PARK
NIAGARA
NIAGARA INTERNATIONAL
VARCUM
AIRCO
Settling Basins
GREAT LAKES CARBON
NIAGARA FALLS
GOODYEAR
HOOKER
Cayuga Creek
LOVE CANAL
UNION CARB.
CARBORUNDUM
DUPONT
OLIN
ICC (SOLVENT CHEM.)
DUPONT
HOOKER
ALOX
NIAGARA FALLS
LITTLE RIVER
Cayuga Island
N
UNITED STATES
CANADA
RIVER
NIAGARA CO
WELLAND CO
ERIE CO
NIAGARA CO
ERIE CO
CORPORATE BOUNDARY

Figure 8. Sampling locations and plant identifications for Niagara Falls, NY.



⑭
ALLIED CHEM
①
BUFFALO COLOR
②
⑫
⑬
③
④
MOBIL
RIVER
REPUBLIC STEEL
BUFFALO
PENNSYLVANIA
THRUWAY
HUMBOLDT PARK
Museum of Science
War Memorial Stadium
Main Post Office
Sperry Park
N

Figure 9. Sampling locations and plant identifications in Buffalo, NY.

Table 11. ESTIMATED LEVELS OF HALOGENATED HYDROCARBONS IN AMBIENT AIR SAMPLES FROM LINDEN, NJ[a]

COMPOUND	PERIOD/LOCATION											
	P1/L1	P1/L3	P1/L2	P2/L4	P3/LX	P4/L4	P4/L5	P4/L6	P5/L7	P6/L8	P6/L9	Blank
methylene chloride	2,709	1,454	1,772 ± 1,318	1,960	2,100	6,444	T(500)	17,400	26,778	19,333 ± 555	9,778	T(5)
chloroform	1,178	429	440 ± 210	T(75)	T(75)	125	T(93)	144	355	258 ± 97	164	17
carbon tetrachloride	426	129	98 ± 39	T(62)	T(62)	T(69)	T(69)	T(69)	T(74)	T(74)	T(74)	T(2)
vinylidene chloride	<212	<212	<212	<212	<212	<250	T(263)	<263	<263	T(263)	<263	T(10)
1,2-dichloroethylene	<212	<212	<212	<212	<212	<250	T(263)	<263	<263	<263	<263	<10
1,1-dichloroethane	<160	<160	<160	<160	<160	<160	229	<216	<229	<229	<229	<8
1,2-dichloroethane	101	41	<160	<160	T(160)	T(151)	T(195)	T(186)	<195	T(195)	T(205)	<8
1,1,1-trichloroethane	222	265	217 ± 43	T(100)	T(217)	T(217)	T(250)	T(250)	T(278)	T(278)	T(278)	T(5)
1,1,2-trichloroethane	<167	<167	<167	<217	<167	<200	200	<200	<217	<217	<217	<5
trichloroethylene	130	240	129 ± 31	T(167)	T(59)	T(72)	T(72)	T(73)	<217	T(74)	<128	<5
tetrachloroethylene	321	960	<674 ± 411	52	78	84	T(106)	T(104)	<104	T(63)	T(179)	<7
1,1,1,2-tetrachloroethane	<130	<80	<101	<75	<70	<63	91	<89	<77	<54	<154	<6
1,1,2,2-tetrachloroethane	<130	<80	<101	<75	<70	<63	91	<89	<77	<54	<154	<6
pentachloroethane	<109	<67	< 84	<62	<59	<52	76	<75	<64	<45	<128	<5
hexachloroethane	<109	<67	84	<62	<59	<52	76	<75	<64	<45	<128	<5
chlorobenzene	63	<200	58	T(187)	T(126)	T(158)	T(227)	<224	<192	T(135)	T(385)	<15
o-dichlorobenzene	T(217)	T(133)	T(169)	T(125)	89	T(105)	T(151)	T(149)	<128	T(90)	T(256)	<10
m-dichlorobenzene	T(217)	78	T(169)	T(125)	T(118)	T(105)	T(151)	T(149)	<128	T(90)	T(256)	<10
p-dichlorobenzene	<196	<120	<152	<112	<106	<94	136	<134	<115	<81	<231	<9
1,2,4-trichlorobenzene	<130	<90	<101	<75	<70	<63	91	<89	<77	<54	<154	<6
1,3,5-trichlorobenzene	<109	<67	<84	<62	<59	<52	76	<75	<64	<45	<128	<5
1,2,3-trichlorobenzene	<130	<90	<101	<75	<70	<63	91	<89	<77	<54	<154	<6

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[a] See Table 7 for sampling protocol and locations. Values are in ng/m^3, < signifies the approximate detection limit considering all conditions of collection and analysis, T = trace and ( ) is the limit of detection.

Table 12. SUMMARY OF VOLATILE ORGANIC VAPORS DETECTED IN AIR: HOUSEHOLD BASEMENT AND SCHOOL ROOMS IN NIAGARA, NY

		Sampling Location						
Chemical Class	Compound	L5	L6	L2	L3	L1	L12A	Elution Temperature
Halogenated hydrocarbons	dichloroethylene	+	-	-	-	-	-	71
	methylene chloride	+	+	-	+	+	+	72
	chloroform	+	+	+	-	+	+	84
	1,1,1-trichloroethane	+	-	+	+	+	-	90
	carbon tetrachloride	+	-	+	-	+	-	94
	trichloroethylene	+	+	+	+	+	+	100
	tetrachloroethylene	+	+	+	+	+	-	124
	pentachlorobutadiene	+	-	-	-	-	-	182
	1,3-hexachlorobutadiene	+	+	+	-	-	-	197
	1,2-dibromoethane	-	-	-	+	-	-	121
	1,2-dichloropropane	-	-	-	-	+	-	99
Halogenated aromatics	1,2-bis-(trifluoromethyl)benzene	-	-	+	-	-	-	102
	chlorobenzotrifluoride isomer	+	+	+	-	+	-	130
	chlorobenzene	-	+	+	+	+	-	131
	chlorobenzotrifluoride isomer	-	-	+	-	-	-	141
	chlorotoluene isomer	+	+	+	+	+	-	151
	dichlorobenzene isomer	+	+	+	+	+	-	161
	chlorotoluene isomer	-	+	-	-	-	-	160
	dichlorobenzene isomer	-	+	-	-	-	-	165
	dichlorobenzene isomer	-	+	+	-	-	-	168
	bromotoluene isomer	+	+	-	-	-	-	168
	chlorobenzodichlorofluoride isomer	-	+	+	-	-	-	172
	chlorobenzaldehyde isomer	+	+	-	-	-	-	179
	dichlorotoluene isomer	+	+	+	+	+	-	181
	trichlorobenzene isomer	+	-	-	-	-	-	183
	dichlorotoluene isomer	+	+	+	-	+	-	185
	trichlorobenzene isomer	+	+	+	+	+	-	189

(continued)

Table 12 (cont'd)

Chemical Class	Compound	Sampling Location						Elution Temperature
		L5	L6	L2	L3	L1	L12A	
	dichlorotoluene isomer	+	+	-	-	-	-	190
	trichlorobenzene isomer	+	+	+	-	+	-	195
	bromochlorotoluene isomer	-	+	-	-	+	-	197
	dichlorobenzaldehyde	-	+	-	-	-	-	202
	trichlorotoluene isomer	+	+	+	-	+	-	203
	trichlorotoluene isomer	+	+	+	-	+	-	208
	trichlorotoluene isomer	+	+	+	+	+	-	209
	tetrachlorobenzene isomer	+	+	+	+	-	-	213
	trichlorotoluene isomer	+	+	+	-	+	-	213
	trichlorotoluene isomer	-	-	+	-	-	-	215
	tetrachlorobenzene isomer	+	-	-	-	+	-	219
	tetrachlorobenzene isomer	-	+	+	+	-	-	222
	chloronaphthalene isomer	-	+	-	-	+	-	222
	tetrachlorotoluene isomer	+	+	+	-	+	-	232
	pentachlorobenzene isomer	-	-	+	+	-	-	240
Esters	methyl formate	-	-	-	-	+	-	64
	ethyl acetate	-	-	+	+	+	-	84
	isopropyl acetate	+	-	-	-	+	-	93
	n-butyl acetate	+	-	+	+	+	-	122
	benzyl acetate	-	-	-	-	+	-	184
	methyl salicylate	+	-	-	-	+	-	191
	alkyl butyrate	-	-	-	-	+	-	218
	vinyl acetate	-	+	-	-	-	-	79
Ethers	methyl furan isomer	+	+	-	-	+	-	83
	2,5-dimethyl furan	-	-	-	-	+	-	102
	diphenyl ether	-	-	-	-	+	-	222
	furan	+	-	-	+	-	-	70
	di-n-butyl ether	-	-	-	+	-	-	138

(continued)

Table 12 (cont'd)

Chemical Class	Compound	L5	L6	L2	L3	L1	L12A	Elution Temperature
		Sampling Location						
Aldehydes	acetaldehyde	+	+	+	+	+	+	61
	isobutyraldehyde	-	-		-	+	-	76
	butenal isomer	+	-	+	+	+	-	78
	n-butanal	+	-	+	-	+	+	80
	n-pentanal	+	-	+	-	+	+	98
	n-heptanal	-	-	-	-	+	+	119
	furfural	-	-	+	-	-	-	126
Ketones	acetone	+	+	+	+	+	+	70
	methyl vinyl ketone	-	-	-	-	+	-	81
	methyl ethyl ketone	+	+	+	+	+	+	81
	methyl isopropyl ketone	+	-	-	-	+	-	92
	$C_{12}H_{18}O$ ketone isomer	-	-	-	-	+	-	184
	2-pentanone	-	-	-	-	+	-	97
	4-methyl-2-pentanone	+	-	+	+	-	-	107
alcohols	methanol	-	-	-	-	+	-	64
	ethanol	+	+	+	+	+	-	67
	t-butanol	+	-	-	-	-	-	73
	isopropanol	-	-	+	-	-	-	72
	(2-butoxyethoxy)ethanol isomer	-	-	-	+	-	-	
acids	acetic	+	+	+	+	+	+	95
	heptanoic	+	-	-	-	-	-	159
Miscellaneous	methoxy-di-*t*-butylphenol isomer	+	-	-	-	-	-	240
	benzothiazole	-	-	-	+	-	-	196

observed during sampling of any ambient air. Thirty-one halogenated aromatics were identified (Table 12). The majority were primarily chlorinated benzenes and toluenes.

Other compounds such as esters, ethers, aldehydes, ketones, alcohols and acids were also identified. The complete listing of all the organic compounds which were identified in these six samples is given in Appendix B.

Using the procedures described in Appendix A, samples of ambient air collected on PUF were analyzed by GC/MS/COMP and the mass spectra of the chromatographic runs were examined principally for the presence of polychlorinated biphenyls, chlorinated phenols, and other chlorinated substances which might be present. The results of these analyses are given in Tables 13-18. The sampling protocol and locations were previously given in Table 9 and Figure 7, respectively. In sample No. 1, in addition to many of the chlorinated benzenes and toluenes, which were also found on the Tenax cartridges, additional compounds were detected on PUF. They were chloronaphthalene, p-chlorotoluene and dichloroaniline (tentative). At location 2 (Table 14), two isomers of hexachlorocyclohexane were identified as well as p-chlorotoluene isomers, hexachlorobenzene, hexachlorotoluene, dichlorobiphenyl (tentative), chlorobenzofluorene (tentative) and heptachlorotoluene. In addition to chloronaphthalene, hexachlorocyclohexane, pentachlorotoluene, we identified dichlorophenols, trichlorophenol and trichloroaniline (tentative) in ambient air at L4 (Table 16). Dichloronaphthalene and p-chlorobiphenyl (tentative) were found at L6.

Quantitative Analysis--

The levels of benzene and halogenated organics in air which were collected on the Tenax GC cartridges from household basements were estimated. For quantification by HRGC/MS/COMP the ions listed in Table 19 were used. Quantitative data are given in Tables 20 and 21. Significant concentrations of the majority of the halogenated hydrocarbons were present. The highest levels occurred at L6 where many of the halogenated compounds occurred in $\mu g/m^3$ amounts. Furthermore, the level of benzene was 522,697 ng/m^3. Also given in Table 20 is an estimated sum of the halogenated organic materials at each location. For example, the total quantity of halogenated organics

Table 13. ORGANIC CHEMICALS IDENTIFIED IN AIR FROM HOUSEHOLD BASEMENT (L1), NIAGARA, NY, USING PUF TECHNIQUE

Chromatographic Peak No.	Elution Time (min)	Compound
1	0.73	dichlorotoluene
2	0.86	trichlorobenzene
3	1.00	unknown
4	1.24	trichlorotoluene
5	1.38	trichlorotoluene
6	1.54	tetrachlorobenzene
7	1.86	tetrachlorobenzene
8	1.89	chloronaphthalene
9	2.13	dichloroaniline (tent.)
10	2.19	tetrachlorotoluene
11	2.46	tetrachlorotoluene
12	2.73	tetrachlorotoluene
13	3.44	unknown
14	4.06	pentachlorotoluene

Table 14. ORGANIC CHEMICALS IDENTIFIED IN AIR FROM HOUSEHOLD BASEMENT (L2), NIAGARA, NY, USING PUF COLLECTION TECHNIQUE

Chromatographic Peak No.	Elution Time (min)	Compound
1	0.76	dichlorotoluene
2	0.93	trichlorobenzene
3	1.39	trichlorotoluene
4	1.53	tetrachlorobenzene
5	1.83	tetrachlorobenzene
6	2.43	unknown
7	2.69	tetrachlorotoluene
8	3.00	tetrachlorotoluene
9	3.06	hexachlorocyclohexane
10	3.13	pentachlorobenzene
12	3.43	pentachlorobenzene
13	3.96	pentachlorotoluene
14	4.89	pentachlorotoluene
15	5.66	pentachlorotoluene
16	5.76	hexachlorocyclohexane
17	6.06	dichlorobiphenyl (tent.)
18	6.39	hexachlorobenzene
19	6.69	unknown
20	7.33	hexachlorotoluene
21	9.09	chlorobenzofluorene (tent.)
22	10.13	heptachlorotoluene

Table 15. ORGANIC CHEMICALS IDENTIFIED IN AIR FROM HOUSEHOLD BASEMENT (L3), NIAGARA, NY, USING PUF TECHNIQUE

Chromatographic Peak No.	Elution Time (min)	Compound
1	1.69	tetrachlorobenzene
2	3.06	pentachlorobenzene

Table 16. ORGANIC CHEMICALS IDENTIFIED IN AIR FROM HOUSEHOLD BASEMENT (L4), NIAGARA, NY, USING PUF COLLECTION TECHNIQUE

Chromatographic Peak No.	Elution Time (min)	Compound
1	0.71	dichlorotoluene
2	0.83	dichlorophenol
3	0.86	trichlorobenzene
4	1.33	trichlorotoluene
5	1.46	tetrachlorobenzene
6	1.63	chloronaphthalene
7	1.69	trichlorophenol
8	1.73	tetrachlorobenzene
9	1.79	tetrachlorobenzene
10	1.93	trichloroaniline (tent.)
11	2.59	tetrachlorotoluene
12	3.06	pentachlorobenzene
13	3.79	pentachlorotoluene (tent.)
14	5.46	hexachlorocyclohexane

Table 17. ORGANIC CHEMICALS IDENTIFIED IN AIR FROM HOUSEHOLD BASEMENT (L5), NIAGARA, NY, USING PUF COLLECTION TECHNIQUE

Chromatographic Peak No.	Elution Time (min)	Compound
1	0.54	dichlorobenzene
2	0.79	dichlorotoluene
3	0.89	trichlorobenzene
4	1.06	hexachlorobutadiene
5	1.23	unknown
6	1.36	trichlorotoluene
7	1.53	tetrachlorobenzene
8	1.83	tetrachlorobenzene
9	2.00	unknown
10	2.69	tetrachlorotoluene
11	3.16	pentachlorobenzene
12	5.66	hexachlorocyclohexane
13	5.93	pentachloropropane
14	6.39	unknown

Table 18. ORGANIC CHEMICALS IDENTIFIED IN AIR FROM HOUSEHOLD BASEMENT (L6), NIAGARA, NY, USING PUF COLLECTION TECHNIQUE

Chromatographic Peak No.	Elution Time (min)	Compound
1	0.36	chlorotoluene
2	0.43	dichlorobenzene
3	0.59	dichlorotoluene
4	0.73	trichlorobenzene
5	1.01	trichlorotoluene
6	1.26	tetrachlorobenzene
7	1.49	tetrachlorobenzene
8	1.56	α-chloronaphthalene
9	2.26	tetrachlorotoluene
10	2.73	pentachlorobenzene
11	3.19	dichloronaphthalene
12	3.36	trichlorophenol (tent.)
13	3.46	pentachlorotoluene
14	4.33	pentachlorotoluene
15	5.79	hexachlorobenzene
16	6.00	unknown
17	6.76	hexachlorotoluene
18	11.39	pentachlorobiphenyl (tent.)

Table 19. IONS SELECTED FOR THE ESTIMATION OF LEVELS OF VAPOR-PHASE ORGANICS IN AMBIENT AIR

			Ion (m/z)			
Chemical Class	Compound	MW	1st	2nd	3rd	4th
Halogenated hydrocarbons	dichloroethylene	96	96	98	-	-
	methylene chloride	84	84	86	-	-
	chloroform	118	83	85	118	-
	1,1,1-trichloroethane	132	97	-	-	-
	carbon tetrachloride	152	117	119	-	-
	trichloroethylene	130	130	-	-	-
	tetrachloroethylene	166	166	168	131	133
	pentachlorobutadiene	224	224	226	189	191
	1,3-hexachlorobutadiene	258	258	260	223	225
Halogenated aromatics	chlorobenzene	112	112	114	113	-
	dichlorobenzene	146	146	148	150	149
	trichlorobenzene	180	180	184	147	-
	tetrachlorobenzene	214	216	218	220	-
	chlorotoluene	126	91	126	128	-
	dichlorotoluene	160	125	127	160	162
	trichlorotoluene	194	159	161	194	196
	tetrachlorotoluene	228	193	197	230	-
	chlorobenzaldehyde	140	139	141	142	-
	dichlorobenzaldehyde	174	173	176	178	-
	bromotoluene	170	170	172	171	-
	bromochlorotoluene	204	206	208	207	-
	chloronaphthalene	162	162	164	-	-

Table 20. ESTIMATED LEVELS OF BENZENE AND HALOGENATED ORGANIC VAPORS IN AIR OF HOUSEHOLD BASEMENTS AND SCHOOL ROOM IN NIAGARA, NY[a]

Chemical	Sampling/Location							
	L1	L2	L3	L4	L5	L6	L12A	B[c]
benzene	13,896[b]	73,785	4,194	6,286	T(39)	522,698	976	5.6
dichloroethylene	<263	<334	<294	<263	T(79)	T(334)	T(334)	<10
methylene chloride	1,534	<714	1,300	1,334	11,556	9,428	4,000	3.6
chloroform	1,670	834	464	684	13,484	8,584	2,668	22
1,1,1-trichloroethane	3,656	506	412	400	3,890	1,000	<334	<5
carbon tetrachloride	200	496	T(83)	5,038	562	704	<95	<2
trichloroethylene	1,224	2,920	270	5,344	1,374	15,880	T(116)	<5
tetrachloroethylene	6,346	10,652	3,342	5,386	51,992	37,442	<163	<7
pentachloroethane	<19	<53	<19	<17	<10	<36	<116	<5
pentachlorobutadiene	<22	<63	<23	<20	T(10)	<43	<140	<6
1,3-hexachlorobutadiene	<22	114	<23	26	100	414	<140	<6
chlorobenzene	1,940	4,232	1,000	3,674	2,778	<107	<348	<15
dichlorobenzene isomer	2,044	4,400	154	2,940	8,914	100,476	<186	<8
dichlorobenzene isomer	260	2,442	76	2,106	6,024	51,600	<186	<8
dichlorobenzene isomer	<30	<63	418	3,654	2,294	34,686	<186	<8
trichlorobenzene isomer	642	10,084	72	56	26	27,228	<140	<6
trichlorobenzene isomer	58	1,010	T(23)	1,306	3,424	2,370	<140	<6
trichlorobenzene isomer	<22	<63	<23	1,066	580	3,686	<140	<6

(continued)

Table 20 (cont'd)

Chemical	Sampling/Location							
	L1	L2	L3	L4	L5	L6	L12A	B[c]
tetrachlorobenzene isomer	16	1,832	<23	280	214	2,400	<140	<6
tetrachlorobenzene isomer	12	9,600	62	360	406	17,142	<140	<6
tetrachlorobenzene isomer	<22	<63	<23	<20	<10	<43	<140	<6
pentachlorobenzene isomer	<22	494	T(23)	18	30	250	<140	<6
chlorotoluene isomer	2,552	14,990	1,754	4,586	3,022	226,514	<116	<5
chlorotoluene isomer	3,820	<53	<19	<17	<8	223,042	<116	<5
dichlorotoluene isomer	8,836	20,926	<19	5,240	7,428	158,628	<116	<5
dichlorotoluene isomer	3,956	6,316	86	5,320	2,318	98,428	<116	<5
dichlorotoluene isomer	<19	<53	48	314	<8	109,872	<116	<5
trichlorotoluene isomer	634	206	46	134	1,644	6,886	<116	<5
trichlorotoluene isomer	3,336	3,790	62	1,786	4,908	42,286	<116	<5
trichlorotoluene isomer	<19	1,810	T(19)	<17	466	43,700	<116	<5
trichlorotoluene isomer	1,142	842	T(19)	594	160	25,986	<116	<5
trichlorotoluene isomer	<19	<53	<19	60	<8	<36	<116	<5
tetrachlorotoluene isomer	148	168	<27	<15	56	<18	<116	<7
tetrachlorotoluene isomer	58	<26	<27	16	<8	970	<116	<7
chlorobenzaldehyde isomer	<26	180	<19	746	34	4,058	<116	<5
dichlorobenzaldehyde isomer	<26	<63	<23	<20	<10	950	<140	<6
bromotoluene isomer	25	T(53)	<19	134	66	4,372	<116	<5

(continued)

Table 20 (cont'd)

Chemical	Sampling/Location							
	L1	L2	L3	L4	L5	L6	L12A	B[c]
bromochlorotoluene isomer	T(19)	<53	<19	80	28	1,542	<116	<5
chloronaphthalene isomer	78	84	<31	<27	<13	3,414	<186	<8
1,2-dichloropropane	1,406	<53	<19	<17	<8	<36	<116	<5
total halogenated organics	59,489	172,713	13,760	58,968	127,778	1,786,636	7,644	

[a] See Table 8 and Fig. 7 for sampling protocol and locations.

[b] Values are in ng/m^3, T = trace, ( ) or < indicates limit of detection.

[c] Values are ng/cartridge, B = Tenax GC blank cartridge.

Table 21. ESTIMATED LEVELS OF HALOGENATED ORGANICS IN AIR FROM HOUSEHOLD BASEMENTS IN NIAGARA, NY[a]

Chemical	Location					
	L8	L10	L11	L13A	L13B	B[c]
benzene	2,610[b]	2,000	85	2,407	241	≤6
dichloroethylene	710	334	294	<334	<334	<10
methylene chloride	3,000	1,285	2,250	1,428	1,857	≤4
chloroform	3,452	1,250	821	667	833	22
1,1,1-trichloroethane	2,000	T(334)	1,562	373	<334	<5
carbon tetrachloride	111	T(334)	80	T(83)	<95	<2
trichloroethylene	388	156	667	295	T(100)	<5
tetrachloroethylene	109	183	396	222	T(155)	<7
pentachloroethane	<18	<19	<22	<111	<111	<5
pentachlorobutadiene	<21	<23	T(26)	<133	<122	<6
1,3-hexachlorobutadiene	<21	<23	<26	<133	<122	<6
chlorobenzene	25	35	75	T(334)	<312	<15
dichlorobenzene isomer	109	7,863	217	<178	T(167)	<8
dichlorobenzene isomer	T(29)	<30	53	<178	167	<8
dichlorobenzene isomer	<28	<30	<30	<178	<167	<8
trichlorobenzene isomer	T(21)	11	23	<134	<125	<6
trichlorobenzene isomer	T(21)	<23	T(23)	<134	<125	<6
trichlorobenzene isomer	<21	<23	T(23)	<134	<125	<6
tetrachlorobenzene isomer	T(21)	T(23)	T(23)	<134	<125	<6

(continued)

Table 21 (cont'd)

Chemical	Location					
	L8	L10	L11	L13A	L13B	B
tetrachlorobenzene isomer	T(21)	23	T(23)	<134	<125	<6
tetrachlorobenzene isomer	<21	<23	<23	<134	<125	<6
pentachlorobenzene	<21	<23	<23	<134	<125	<6
chlorotoluene isomer	<21	581	25	1,067	1,729	<5
chlorotoluene isomer	590	<19	<19	<111	<104	<5
dichlorotoluene isomer	<18	<19	49	T(111)	<104	<5
dichlorotoluene isomer	74	<19	<19	<111	<104	<5
dichlorotoluene isomer	<18	<19	<19	<111	<104	<5
trichlorotoluene isomer	T(18)	T(19)	<19	<111	<104	<5
trichlorotoluene isomer	T(18)	T(19)	<19	<111	<104	<5
trichlorotoluene isomer	<18	<19	<19	<111	<104	<5
trichlorotoluene isomer	<18	<19	<19	<111	<104	<5
trichlorotoluene isomer	<18	<19	<19	<111	<104	<5
tetrachlorotoluene isomer	<25	<27	<27	<155	<146	<7
tetrachlorotoluene isomer	<25	<27	<27	<155	<146	<7
chlorobenzaldehyde	T(18)	<21	<19	<111	<104	<5
dichlorobenzaldehyde	<21	<23	<23	<133	<125	<6
bromotoluene	<18	<23	<19	<111	<104	<5
bromochlorotoluene	<18	<23	<19	<111	<104	<5
chloronaphthalene	<28	<30	<30	<178	<167	<8
1,2-dichloropropane	<18	<23	<19	<111	<104	<5

[a] See Table 8 and Fig. 7 for sampling protocol and location.

[b] Values are in ng/m^3, T = trace, ( ) or < indicates limit of detection.

[c] Values are in ng/cartridge, B = Tenax GC blank cartridge.

measured at L6 was 1,786,636 ng/m^3. In contrast, the levels of halogenated organics in the ambient air samples at the Elementary Schools (L12A, 13A and 13B) were near or below the detection limit. Also, the total estimated halogenated organics in the sample from L12A was 7,644 ng/m^3.

Table 23 presents the controls which were used in this study. Since the actual chemicals present in the air of the basements were not known prior to sampling, a number of chemicals were used representing different classes for controls.

Niagara Falls and Buffalo, NY

Qualitative Analysis--

A complete listing of vapor-phase organics found in this area is given in Appendix B. Table 24 presents a summary of the volatile organics which were identified.

Quantitative Analysis--

The levels of a few selected halogenated hydrocarbons were determined and these data are given in Table 25. Of particular interest are two sets of samples which were collected as upwind-downwind combinations across a public swimming pool (P1/L4 and P1/L3) and a dry cleaning establishment (P4/L13 and P4/L12). An elevated level of 1,1,1-trichloroethane was detected at the swimming pool. A significantly higher level of tetrachloroethylene was found near the dry cleaning operation.

Pollution Profiles of Vapor-Phase Halogenated Organics in Ambient Air: Ubiquitous and Site-Specific Categories

One of the major concerns of this contract program has been to provide pollution profiles which delineate those ambient air pollutants that are site-specific from those which are considered to be ubiquitous. To this end, a compilation of the chemicals identified from various sampling sites (Locations) throughout the Continental U.S. was prepared. Information from the following contracts was extracted: 68-02-1228, 68-02-2262, 6802-2543, 68-02-2808, 68-02-2721, 68-02-2764 and 68-01-1978.

A series of maps is given in Appendix C which will assist in locating the origin of the ambient air sample. A map of the Continental U.S. depicting the EPA regional territories is provided. The circles indicate the geographical areas which were sampled with the Tenax GC sampling cartridge.

Table 22. ESTIMATED LEVELS OF HALOGENATED ORGANICS IN AMBIENT AIR OF HOUSEHOLD BASEMENTS AND SCHOOL ROOMS IN NIAGARA FALLS, NY[a]

CHEMICAL	LOCATION			
	L7	L9	L12B	L13C
benzene	3,240[b]	4,694	1,704	1,775
dichloroethylene	63	<213	104	NQ
methylene chloride	1,545	3,627	10,182	44
chloroform	1,595	2,190	3,119	895
1,1,1-trichloroethane	608	356	369	395
carbon tetrachloride	153	85	59	73
trichloroethylene	151	122	238	126
tetrachloroethylene	304	151	294	625
pentachloroethane	<38	<23	<106	<66
pentachlorobutadiene	<45	<27	<128	<79
1,3-hexachlorobutadiene	<45	<27	<128	<79
chlorobenzene	68	<69	T(319)	T(197)
dichlorobenzene isomer	2,172	386	238	722
dichlorobenzene isomer	31	22	T(170)	295
dichlorobenzene isomer	45	<36	<170	<79
trichlorobenzene isomer	65	28	T(128)	T(79)
dichlorobenzene isomer	45	T(27)	<127	<79
dichlorobenzene isomer	45	<27	<127	<79
tetrachlorobenzene isomer	32	17	<127	<79
tetrachlorobenzene isomer	T(45)	<27	<127	<79
tetrachlorobenzene isomer	45	<27	<127	<79
pentachlorobenzene	45	<27	<127	<79
chlorotoluene isomer	4,142	639	1,013	645
chlorotoluene isomer	<37	<23	296	<66
dichlorotoluene isomer	653	<23	T(106)	<66
dichlorotoluene isomer	<37	<23	<106	<66
dichlorotoluene isomer	<37	<23	<106	<66
trichlorotoluene isomer	69	<23	<106	<66
trichlorotoluene isomer	79	<23	<106	<66
trichlorotoluene isomer	<37	<23	<106	<66
trichlorotoluene isomer	<37	<23	<106	<66
trichlorotoluene isomer	<37	<23	<106	<66
tetrachlorotoluene isomer	97	<32	<149	<92
chlorobenzaldehyde isomer	<52	<23	<106	<66
dichlorobenzaldehyde isomer	<37	<27	<128	<79
bromotoluene	<45	<23	<106	<66
bromochlorotoluene	<37	<23	<106	<66
chloronaphthalene	<59	<36	<106	<105

[a] See Table 8 and Fig. 7 for sampling protocol and locations.

[b] Values are in ng/m^3, T = trace, ( ) or < indicates limits of detection.

Table 23. RECOVERIES OF SELECTED ORGANIC VAPORS FROM TENAX CARTRIDGES SUBJECTED TO SAMPLE TRANSPORTATION AND STORAGE[a]

Chemical	Quantity Added (ng)	Quantity Recovered (ng)	% Recovery
perfluorobenzene	320.8	337	105
perfluorotoluene	221.1	232	105
benzene	258.0	220	85
methylene chloride	355.1	179	50
chloroform	177.8	159	89
1,1,1-trichloroethane	45.6	9	20
toluene	101.2	115	113
methyl ethyl ketone	302.0	211	70

[a] Each chemical was spiked onto a Tenax GC sampling cartridge from a permeation line, transported to Niagara Falls, NY, returned, stored (-20°C) and then analyzed by GC/MS/COMP. Total time was 25 days.

Table 24 . SUMMARY OF VOLATILE ORGANICS IDENTIFIED IN AMBIENT AIR FROM NIAGARA FALLS AND BUFFALO, NY[a]

Chemical Class	Compound	L1	L2	L3	L4	L5
Halogenated hydrocarbons	methylene chloride	+	+	+	+	+
	chloroform	+	+	+	+	+
	1,1,1-trichloroethane	+	+	+	+	+
	carbon tetrachloride	+	-	+	-	-
	tetrachloroethylene	+	+	+	+	+
	dichlorobenzene isomer(s)	+	-	+	+	+
	trichloroethylene	-	+	+	+	+
	methyl chloride	-	-	+	-	-
	chlorobenzene	-	-	+	-	-
	tetrachlorobenzene	-	-	+	-	-
Phenols	phenol	+	+	+	+	+
	cresol isomer(s)	+	-	-	+	-
	C_2-alkyl phenol isomer(s)	+	+	+	+	+
	C_3-alkyl phenol isomer(s)	+	+	+	+	+
	C_4-alkyl phenol isomer(s)	-	-	+	-	-
	C_6-alkyl phenol isomer(s)	-	-	+	-	-
	C_8-alkyl phenol isomer(s)	-	-	-	+	-
Aldehydes	propanal	+	+	-	-	+
	n-butanal	+	+	+	-	+
	pentanal	+	+	-	-	+
	heptanal	+	-	+	-	-
	benzaldehyde	+	+	+	+	+
	n-octanal	+	+	+	-	+
	n-nonanal	+	+	+	+	+
	n-decanal	+	+	+	+	+
	n-hexanal	-	+	+	+	+
	n-undecanal	+	-	-	-	-
	acetaldehyde	+	+	+	+	+

(continued)

Table 24 (cont'd)

Chemical Class	Compound	L1	L2	L3	L4	L5
Furans	furan	–	+	–	–	+
	2-methylfuran	–	+	–	–	–
	furfural	–	+	–	–	–
	methylbenzofuran isomer	–	–	–	+	–
Ketones and Esters	acetophenone	+	+	–	+	+
	diethyl phthalate(s)	+	+	–	+	+
	alkyl butyrate(s)	+	–	+	+	+
	methyl ethyl ketone	–	+	+	+	+
	vinyl acetate	–	–	–	+	–
	methyl vinyl ketone	–	–	–	+	–
	ethyl acetate	–	–	–	+	–
	4-methyl-2-pentanone	–	–	–	+	–
	acetone	+	+	+	+	+
Alcohols	alcohol(?)	–	–	+	+	–
	1-butanal	–	–	–	+	–

[a] See Table 10 for protocol and Figs. 8 and 9 for locations.

Table 25. ESTIMATED LEVELS OF SELECTED HALOGENATED HYDROCARBONS FOR NIAGARA FALLS, BUFFALO, NY, AND VICINITY

Halogenated Compound	Period/Location									
	P1/L1	P1/L2	P1/L3[b]	P1/L4[b]	P2/L9	P2/L10	P3/L5	P3/L6	P4/L12[c]	L4/L13[c]
chloroform	10,333	6,524	4,000	5,809	8,333	5,809	6,333	1,190	5,238	3,238
1,2-dichloroethane	ND	ND	ND	T	ND	T	ND	ND	357	679
1,1,1-trichloroethane	786	714	22,786	571	1,000	6,571	1,286	1,143	4,286	3,571
carbon tetrachloride	T	842	1,105	789	T	631	842	632	1,158	1,947
trichloroethylene	744	767	ND	T	T	T	581	349	2,698	1,279
tetrachloroethylene	107	268	70	T	444	625	769	302	28,024	5,217
chlorobenzene	ND	1,911	ND	T	ND	T	ND	ND	40	83
m,p-dichlorobenzene	97	2,482	T	ND	T	54	67	T	137	233
o-dichlorobenzene	126	18	ND	ND	ND	62	T	ND	24	50

[a] See Table 25 for sampling protocol and Figs. 8 and 9 for locations.

[b] P1/L3 and P1/L4 represent downwind and upwind locations across a public swimming pool, respectively.

[c] P4/L12 and P4/L13 are downwind and upwind locations across a dry cleaning establishment, respectively.

Subsequent maps are provided for each of the regions with increasing degrees of resolution to pinpoint the sampling locations.

Appendix D presents the compilation of halogenated chemicals. Based upon the frequency of observation of a compound per number of determinations, two categories were prepared. The halogenated compounds appearing in upwind samples more than 60% of the time were designated as ubiquitous while those appearing only in downwind samples from industrial sites were grouped as site-specific. Table 26 lists the ubiquitous halogenated compounds detected in ambient air.

TABLE 26. UBIQUITOUS VAPOR-PHASE HALOGENATED ORGANICS IN AMBIENT AIR

Compound	Compound
chloromethane	trichloroethylene
methylene chloride	tetrachloroethylene
chloroform	chlorobenzene
1,2-dichloroethane	*o*-dichlorobenzene
1,1,1-trichloroethane	*m*-dichlorobenzene
carbon tetrachloride	

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APPENDIX A

ANALYTICAL METHODS FOR VOLATILE ORGANICS AND POLYCHLORINATED BIPHENYLS IN AMBIENT AIR

SAMPLING AND ANALYSIS OF VOLATILE ORGANIC COMPOUNDS IN AMBIENT AIR

Principle of Method

Volatile organic compounds are concentrated from ambient air onto Tenax GC in a short glass tube (1-3). Recovery of the volatile organics is accomplished by thermal desorption and purging with helium into a liquid nitrogen cooled nickel capillary trap (1,2,4) and then the vapors are introduced into a high resolution glass gas chromatographic column where the constituents are separated from each other (2,5). Characterization and quantification of the constituents in the sample are accomplished by mass spectrometry either by measuring the intensity of the total ion current signal or mass fragmentography (2,6). The collection and analysis systems are shown in Figure A-1.

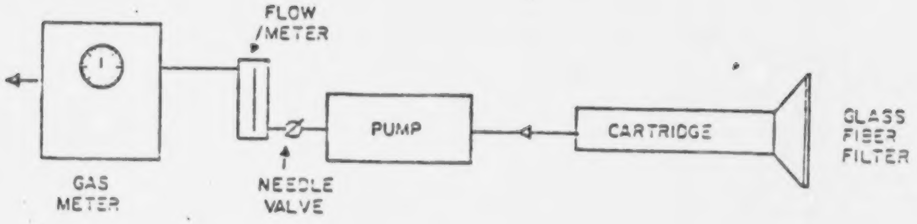
Range and Sensitivity

The linear range for the analysis of volatile organic compounds depends upon two principal features. The first is a function of the breakthrough volume of each specific compound which is trapped on the Tenax GC sampling cartridge and the second is related to the inherent sensitivity of the mass spectrometer for each organic (2,7). Thus, the range and sensitivity are a direct function of each compound which is present in the original ambient air. The linear range for the quantitation on the gas chromatograph/mass spectrometer/computer (GC/MS/COMP) is generally three orders of magnitude. Table A1 lists the overall theoretical sensitivity for some examples of volatile organics which is based on these two principles (7).

The sensitivity of this technique for the very volatile organic compounds (C_1 to C_5 alkanes) is inadequate for the purpose of this study. Alternate methods for their collection and analysis are suggested (11).

Interferences

The potential difficulties with this technique are primarily associated with those cases where isomeric forms of a particular substance cannot be resolved by the high resolution chromatographic column and when the mass cracking patterns of each of the isomers are identical. An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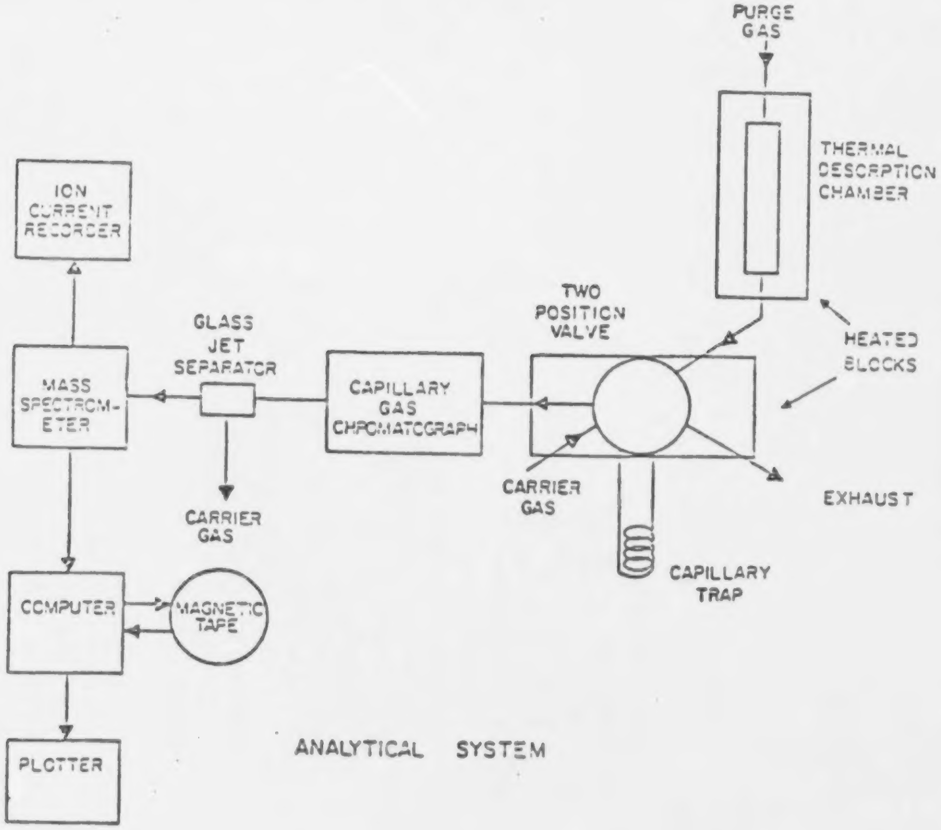
VAPOR COLLECTION SYSTEM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CHROMATOGRAPH
CARRIER
GAS
EXHAUST
CARRIER
GAS
CAPILLARY
TRAP
COMPUTER
MAGNETIC
TAPE
PLOTTER

ANALYTICAL SYSTEM

Figure A1. Vapor collection and analytical systems for analysis of organic vapors in ambient air.

Table A1. OVERALL THEORETICAL SENSITIVITY OF HIGH RESOLUTION GAS CHROMATOGRAPHY/MASS SPECTROMETRY/COMPUTER ANALYSIS FOR ATMOSPHERIC POLLUTANTS

Chemical Class	Compound	Estimated Detection Limit[a]	
		ng/m^3	ppt
Halogenated hydrocarbon	Vinyl bromide	250	57
	Bromoform	0.340	0.03
	Bromodichloromethane	1.300	0.22
	Dibromochloromethane	0.667	0.07
	1-Bromo-2-chloroethane	1.00	0.67
	Allyl bromide	5.00	1.04
	1-Bromopropane	5.200	1.06
	1-Chloro-3-bromopropane	0.150	0.01
	1-Chloro-2,3-dibromopropane	~0.100	<0.01
	1,1-Dibromo-2-chloropropane	~0.100	<0.01
	1,2-Dibromoethane	0.530	0.07
	1,3-Dibromopropane	~0.100	~0.01
	Epichlorohydrin (1-Chloro-2,3-epoxypropane)	9.600	2.50
	Epibromohydrin (1-Bromo-2,3-epoxypropane)	0.300	0.05
	Bromobenzene	0.100	0.02
	Methyl bromide	500	135
	Methyl chloride	2000	1000
	Vinyl chloride	800	333
	Methylene chloride	700	200
	Chloroform	200	420
	Carbon tetrachloride	250	400

(continued)

Table Al (cont'd)

Chemical Class	Compound	Estimated Detection Limit[a]	
		ng/m^3	ppt
Halogenated hydrocarbon (cont'd)	1,2-Dichloroethane	32	8.15
	1,1,1-Trichloroethane	66	12.45
	Tetrachloroethylene	2.5	0.38
	Trichloroethylene	10	1.92
	1-Chloro-2-methylpropene	62	21.5
	3-Chloro-2-methylpropene	62	21.5
	3-Chloro-1-butene	83	28.8
	Allyl chloride	83	28.8
	4-Chloro-1-butene	38	13.2
	1-Chloro-2-butene	13	4.5
	Chlorobenzene	2.10	0.47
	o-Dichlorobenzene	1.00	0.06
	m-Dichlorobenzene	0.75	0.01
	Benzylchloride	0.65	0.01
Halogenated ethers	2-Chloroethyl ethyl ether	4.15	0.97
	Bis-(chloromethyl)ether	1.0	1.10
Nitrosamines	N-Nitrosodimethylamine	5.0	1.67
	N-Nitrosodiethylamine	3.0	0.74
Oxygenated hydrocarbons	Acrolein	~100	56.5
	Glycidaldehyde	~59	9.5
	Propylene oxide	~60	25.5

(continued)

Table A1 (cont'd)

Chemical Class	Compound	Estimated Detection Limit[a]	
		ng/m^3	ppt
Oxygenated hydrocarbons (cont'd)	Butadiene diepoxide	∼20	6.7
	Cyclohexene oxide	∼10	2.5
	Styrene oxide	2	0.415
	Acetophenone	∼2	∼0.415
	β-Propiolactone	∼3	∼1.2
Nitrogenous Compounds	Nitromethane	8	∼2.4
	Aniline	3.0	0.78
Sulfur Compounds	Diethyl sulfate	∼50	-
	Ethyl methane sulfate	∼5.0	-

[a] Limits are calculated on the basis of the breakthrough volume for 2.2 g of Tenax GC (at 70°F), capillary column performance and sensitivity of the mass spectrometer to that compound in the mass fragmentography mode of most intense ion.

there are 53 isomers. As the number of carbon atoms increases in the hydrocarbons and aromatics, the number of potential isomers becomes increasingly large and difficult to completely resolve by gas chromatography and/or by their corresponding mass cracking patterns. However, differentiation between the hydrocarbons, that is, alkanes, alkenes, aromatics, oxygenated, etc., can be accomplished.

4.0 Reproducibility

The reproducibility of this method has been determined to range from ±10 to ±30% of the relative standard deviation for different substances when replicate sampling cartridges are examined (5). The inherent analytical errors are a function of several factors: [1] the ability to accurately determine the breakthrough volume for each of the identified organic compounds; [2] the accurate measurement of the ambient air volume sampled; [3] the percent recovery of the organic from the sampling cartridge after a period of storage; [4] the reproducibility of thermal desorption for a compound from the cartridge and its introduction into the analytical system; [5] the accuracy of determining the relative molar response ratios between the identified substance and the external standard used for calibrating the analytical system, [6] the reproducibility of transmitting the sample through the high resolution gas chromatographic column; and [7] the day-to-day reliability of the MS/COMP system (1-8).

The accuracy of analysis is generally ±30% but depends on the chemical and physical nature of the compound (2,8).

5.0 Advantages and Disadvantages of the Method

The gas chromatograph/mass spectrometer interfaced with a glass jet separator is extremely sensitive and specific for the analysis of many volatile organic compounds in ambient air. High resolution gas chromatographic separation provides adequate resolution of the substances found in ambient air for their subsequent quantification. The combination of the high resolution gas chromatographic column and the selection of specific or unique ions representing the various compounds of interest identified in the air samples yields a relatively specific assay method for these compounds (1-8).

Collected samples can be stored up to one month with less than 10% losses for most of the chemical classes (2,8). Because some of the compounds of interest may be hazardous to man, it is extremely important to exercise safety precautions in the preparation and disposal of liquid and gas standards, cleaning of used glassware, etc. in the analysis of air samples.

Since the mass spectrometer cannot be conveniently mobilized, sampling must be carried out away from the instrument.

The efficiency of air sampling increases as the ambient air decreases (i.e., sensitivity increases) (8).

The retention of water by Tenax is low; its thermal stability is high; and its background is negligible allowing sensitivity analysis (1,2,5,8).

Apparatus

Sampling Cartridges--

The sampling tubes are prepared by packing a ten centimeter long by 1.5 cm i.d. glass tube containing 6 cm of 35/60 mesh Tenax GC with glass wool in the ends to provide support (2,5). Virgin Tenax (or material to be recycled) is extracted in a Soxhlet apparatus for a minimum of 18 hours each time with acetone and hexane prior to preparation of cartridge samplers (2,5). After purification of the Tenax GC sorbent and drying in a vacuum oven at 100°C for 3 to 5 hours at 28 inches of water, all the sorbent material is meshed to provide a 35/60 particle size range. Cartridge samplers are then prepared and conditioned at 270°C with helium flow at 30 ml/min for 30 min. The conditioned cartridges are transferred to Kimax® (2.5 cm x 150 cm) culture tubes, immediately sealed using Teflon-lined caps and cooled. This procedure is performed in order to avoid recontamination of the sorbent bed (2,5).

Cartridge samplers with longer beds of sorbent may be prepared using a proportionally increased amount of Tenax in order to achieve a larger breakthrough volume for compounds of interest, and thus increasing the overall sensitivity of the technique (8).

Gas Chromatographic Column--

A 0.35 mm i.d. x 100 m glass SCOT capillary column coated with SE-30 stationary phase and 0.1% benzyltriphenylphosphonium chloride is used for effecting the resolution of the volatile organic compounds (5). The capillary volume is conditioned for 48 hrs. at 245° at 2.25 ml/min of helium flow.

A glass jet separator on a Varian MAT CH-7 GC/MS/COMP system is employed to interface the glass capillary column to the mass spectrometer. The glass jet separator is maintained at 240°C (2,5).

Inlet Manifold--

An inlet manifold for thermally recovering vapors trapped on Tenax sampling cartridges is used and is shown in Figure A1 (1,2,4,5).

Gas Chromatograph--

A Varian 1700 gas chromatograph is used to house the glass capillary column and is interfaced to the inlet manifold (Figure A1).

Mass Spectrometer/Computer--

A Varian MAT CH-7 mass spectrometer with a resolution of 2,000 equipped with a single ion monitoring capability is used in tandem with a gas chromatograph (Figure A1). The mass spectrometer is interfaced to a Varian 620/L computer (Figure A1).

Reagents and Materials

All reagents used are analytical reagent grade.

Procedure

Cleaning of Glassware--

All glassware, sampling tubes, cartridge holders, etc. are washed in Isoclean/water, rinsed with deionized distilled water, acetone and air dried. Glassware is heated to 450-500°C for 2 hours to insure that all organic material has been removed prior to its use.

Preparation of Tenax GC--

Virgin Tenax GC is extracted in a Soxhlet apparatus for a minimum of 18 hours with acetone or methanol prior to its use. The Tenax GC sorbent is dried in a vacuum oven at 100°C for 3-5 hours and then sieved to provide a fraction corresponding to 35/60 mesh. This fraction is used for preparing sampling cartridges. In those cases where sampling cartridges of Tenax GC are recycled, the sorbent is extracted in a Soxhlet apparatus with acetone or methanol as described for the virgin material, but the sorbent is further extracted with a non-polar solvent, hexane, in order to remove the relatively non-polar and non-volatile materials which might have accumulated on the sorbent bed during previous sampling periods.

Collection of Volatile Organics in Ambient Air--

Continuous sampling of ambient air is accomplished using a Nutech Model 221-A portable sampler (Nutech Corp., Durham, NC, see Figure A1, Reference 2). Flow rates between 1-10 ℓ/min are available with this sampling system. Flow rates are generally maintained at 1 ℓ using critical orifices and the total flow is monitored through a calibrated flow meter. The total flow is also registered by a dry gas meter. Conconcomitant with these parameters the temperature is continuously recorded with a Meteorological Research, Inc. Weather Station since the breakthrough volume is important in order to obtain quantitative data on the volatile organics. This portable sampling unit operates on a 12 volt storage battery and is capable of continuous operation up to a period of 24 hours. However, in most cases at the rates which are employed in the field, the sampling period is generally 1-3 hours. This portable sampling unit is generally utilized for obtaining "high volume" samples. Duplicate cartridges are deployed on each sampling unit utilizing a sampling head as shown in Figure A2.

In addition to the Nutech samplers, DuPont personnel samplers are also used to acquire "low volumes" of ambient air as well as long-term integrated samples (12-36 hrs). Identical Tenax GC sampling cartridges are employed in this case, and the sampling is conducted in duplicate. The flow rate is balanced between duplicate cartridges using critical orifices to maintain a rate of 25-100 ml/min per cartridge.

For large sample volumes, it is important to realize that a total volume of air may cause the elution of compounds through the sampling tube if their breakthrough volume is exceeded. The breakthrough volumes of some of the volatile organics are shown in Table A2 (2,4,7,8). These breakthrough volumes have been determined by a previously described

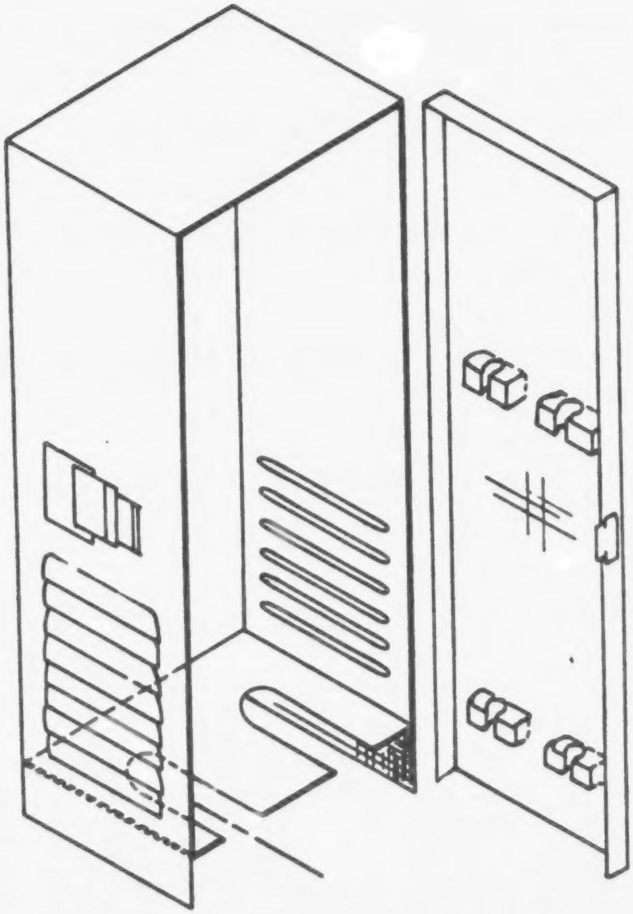

Figure A2. Sampling head for housing cartridge sampling train.

Table A2. TENAX GC BREAKTHROUGH VOLUMES FOR SEVERAL ATMOSPHERIC POLLUTANTS[a]

Chemical Class	Compound	b.p. (°C)	Temperature (°F)					
			50	60	70	80	90	100
Halogenated hydrocarbon	methyl chloride	-24	8	6	5	4	3	2.5
	methyl bromide	3.5	3	2	2	1	1	0.9
	vinyl chloride	13	2	1.5	1.25	1.0	0.8	0.6
	methylene chloride	41	11	9	7	5	4	3
	chloroform	61	42	31	24	18	13	10
	carbon tetrachloride	77	34	27	21	16	13	10
	1,2-dichloroethane	83	53	41	31	23	18	14
	1,1,1-trichloroethane	75	23	18	15	12	9	7
	tetrachloroethylene	121	361	267	196	144	106	78
	trichloroethylene	87	90	67	50	38	28	21
	1-chloro-2-methylpropene	68	26	20	16	12	9	7
	3-chloro-2-methylpropene	72	29	22	17	13	10	8
	1,2-dichloropropane	95	229	162	115	81	58	41
	1,3-dichloropropane	121	348	253	184	134	97	70
	epichlorohydrin (1-chloro-2,3-epoxypropane)	116	200	144	104	74	54	39
	3-chloro-1-butene	64	19	15	12	9	7	6
	allyl chloride	45	21	16	12	9	6	5
	4-chloro-1-butene	75	47	36	27	20	15	12
	1-chloro-2-butene	84	146	106	77	56	40	29
	chlorobenzene	132	899	653	473	344	249	181
	o-dichlorobenzene	181	1,531	1,153	867	656	494	372
	m-dichlorobenzene	173	2,393	1,758	1,291	948	697	510

(continued)

Table A2 (cont'd)

Chemical Class	Compound	b.p. (°C)	Temperature (°F) 50	60	70	80	90	100
Halogenated hydrocarbons (cont'd)	benzyl chloride	179	2,792	2,061	1,520	1,125	830	612
	bromoform	149	507	386	294	224	171	131
	ethylene dibromide	131	348	255	188	138	101	74
	bromobenzene	155	2,144	1,521	1,079	764	542	384
Halogenated Ethers	2-chloroethyl ethyl ether	108	468	336	241	234	124	89
	Bis-(chloromethyl)ether	-	995	674	456	309	209	142
Nitrosamines	N-nitrosodimethylamine	151	385	280	204	163	148	107
	N-nitrosodiethylamine	177	2,529	1,836	1,330	966	700	508
Oxygenated hydrocarbons	acrolein	53	19	14	10	8	6	4
	glycidaldehyde	-	364	247	168	114	77	52
	propylene oxide	34	35	24	17	11	8	5
	butadiene diepoxide	-	1,426	1,009	714	506	358	253
	cyclohexene oxide	132	2,339	1,644	1,153	811	570	400
	styrene oxide	194	5,370	3,926	2,870	2,094	1,531	1,119
	phenol	183	2,071	1,490	1,072	769	554	398
	acetopheonone	202	3,191	2,382	1,778	1,327	991	740
	β-propiolactone	57	721	514	366	261	186	132
Nitrogenous Hydrocarbons	nitromethane	101	45	34	25	19	14	11
	aniline	184	3,864	2,831	2,075	1,520	1,114	817
Sulfur Compounds	diethyl sulfate	208	40	29	21	15	11	8
	ethyl methane sulfate	86	5,093	3,681	2,564	1,914	1,384	998

(continued)

Table A2 (cont'd)

Chemical Class	Compound	b.p. (°C)	Temperature (°F) 50	60	70	80	90	100
Amines	dimethylamine	7.4	9	6	4	3	2	1
	isobutylamine	69	71	47	34	23	16	11
	t-butylamine	89	6	5	4	3	2	1
	di-(n-butyl)amine	159	9,506	7,096	4,775	3,105	2,168	1,462
	pyridine	115	378	267	189	134	95	67
	aniline	184	8,128	5,559	3,793	2,588	1,766	1,205
Ethers	diethyl ether	34.6	29	21	15	11	8	5
	propylene oxide	35	13	9	7	5	4	3
Esters	ethyl acetate	77	162	108	72	48	32	22
	methyl acrylate	80	164	111	75	50	34	23
	methyl methacrylate	100	736	484	318	209	137	90
Ketones	acetone	56	25	17	12	8	6	4
	methyl ethyl ketone	80-2	82	57	39	27	19	13
	methyl vinyl ketone	81	84	58	40	28	19	14
	acetophenone	202	5,346	3,855	2,767	2,000	1,439	1,037
Aldehydes	acetaldehyde	20	3	2	2	1	0.9	0.7
	benzaldehyde	179	7,586	5,152	3,507	2,382	1,622	1,101
Alcohols	methanol	64.7	1	1	0.8	0.6	0.4	0.3
	n-propanol	97.4	27	20	14	10	7	5
	allyl alcohol	97	32	23	16	11	8	6

(continued)

Table A2 (cont'd)

Chemical Class	Compound	b.p. (°C)	Temperature (°F)					
			50	60	70	80	90	100
Aromatics	benzene	80.1	108	77	54	38	27	19
	toluene	110.6	494	348	245	173	122	86
	ethylbenzene	136.2	1,393	984	693	487	344	243
	cumene	152.4	3,076	2,163	1,525	1,067	750	527
Hydrocarbons	*n*-hexane	68.7	32	23	17	12	9	6
	n-heptane	98.4	143	104	75	55	39	29
	1-hexene	63.5	28	20	15	11	8	6
	1-heptene	93.6	286	196	135	93	64	44
	2,2-dimethylbutane	49.7	0.5	0.4	0.3	0.2	0.2	0.1
	2,4-dimethylpentane	80.5	435	252	146	84	49	28
	4-methyl-1-pentene	53.8	14	10	8	6	4	3
	cyclohexane	80.7	49	36	26	19	14	10
Inorganic gases	nitric oxide	-	0	0	0	0	0	0
	nitrogen dioxide	-	0	0	0	0	0	0
	chlorine	-	0	0	0	0	0	0
	sulfur dioxide	-	0.06	0.05	0.03	0.02	0.02	0.01
	water	100	0.06	0.05	0.04	0.03	0.01	0

[a] Breakthrough volume is given in ℓ/2.2 g Tenax GC used in sampling cartridges.

technique (2). The breakthrough volume is defined as that point at which 50% of a discrete sample introduced into the cartridge is lost. Although the identity of a compound during ambient air sampling is not known (therefore, also its breakthrough volume), the compound can still be quantified after identification by GC/MS/COMP once the breakthrough volume has subsequently been established. Thus, the last portion of the sampling period is selected which represents the volume of air sampled prior to breakthrough for calculating concentration. For cases in which the identity of a volatile organic compound is not known until after GC/MS, the breakthrough volume is subsequently determined.

Previous experiments have shown that the organic vapors collected on Tenax GC sorbent are stable and can be quantitatively recovered from the cartridge samplers up to 4 weeks after sampling when they are tightly closed in cartridge holders and placed in a second container that can be sealed, protected from light and stored at 0°C (1,2).

Analysis of Samples--

The instrumental conditions for the analysis of volatile organics on the sorbent Tenax GC sampling cartridge is shown in Table A3. The thermal desorption chamber and the six port Valco valve are maintained at 270° and 240°, respectively. The glass jet separator is maintained at 240°. The mass spectrometer is set to scan the mass range from 25-350. The helium purge gas through the desorption chamber is adjusted to 15-20 ml/min. The nickel capillary trap on the inlet manifold is cooled with liquid nitrogen. In a typical thermal desorption cycle, a sampling cartridge is placed in the preheated desorption chamber and the helium gas is channeled through the cartridge to purge the vapors into the liquid nitrogen capillary trap [the inert activity of the trap has been shown in a previous study (5)]. After the desorption has been completed, the six-port valve is rotated and the temperature on the capillary loop is rapidly raised (greater than 10°/min); the carrier gas then introduces the vapors onto the high resolution GC column. The glass capillary column is temperature programmed from ambient to 240°C at 4°C/min and held at the upper limit for a minimum of 10 min. After all the

Table A3. OPERATING PARAMETERS FOR GLC/MS/COMP SYSTEM

Parameter	Setting
Inlet-manifold	
desorption chamber	270°C
valve	220°C
capillary trap - minimum	-195°C
maximum	+250°C
thermal desorption time	4 min
GLC	
100 m glass SCOT SE/30	25-240°C, 4°C/min
carrier (He) flow	∼3 ml/min
transfer line to MS	240°C
MS	
scan range	*m/z* 20 → 300
scan range, automatic-cyclic	1 sec/decade
filament current	300 μA
multiplier	6.0
ion source vacuum	∼4 x 10^{-6} torr

components have been eluted from the capillary column, the analytical column is then cooled to ambient temperature and the next sample is processed (2).

An example of the analysis of volatile organics in ambient air is shown in Figure A3 and the background from a blank cartridge is shown in Figure A4. The high resolution glass capillary column was coated with SE-30 stationary phase which is capable of resolving a multitude of compounds to allow their subsequent identification by MS/COMP techniques; in this case over 120 compounds were identified in this chromatogram.

Operation of the MS/COMP System (Figure A5)--Typically the mass spectrometer is first set to operate in the repetitive scanning mode. In this mode the magnet is automatically scanned exponentially upward from a preset low mass to a high mass value. Although the scan range may be varied depending on the particular sample, typically the range is set from *m/z* 25 to *m/z* 300. The scan is completed in approximately 1.8 seconds. At this time the instrument automatically resets itself to the low mass position in preparation for the next scan, and the information is accumulated by an on-line 620/L computer and written onto magnetic tapes or the dual disk system. The reset period requires approximately 2.0 seconds. Thus, a continuous scan cycle of 3.8 seconds/scan is maintained and repetitively executed throughout the chromatographic run. The result is the accumulation of a continuous series of mass spectra throughout the chromatographic run in sequential fashion.

Prior to running unknown samples, the system is calibrated by introducing a standard substance, perfluorokerosene, into the instrument and determining the time of appearance of the known standard peaks in relation to the scanning magnetic field. The calibration curve which is thus generated is stored in the 620/L computer memory. This calibration serves only to calibrate the mass ion over the mass scanning range.

While the magnet is continuously scanning, the sample is injected and automatic data acquisition is initiated. As each spectrum is acquired by the computer, each peak which exceeds a preset threshold is recognized and reduced to centroid time and peak intensity. This information is stored in the computer core while the scan is in progress. In addition,

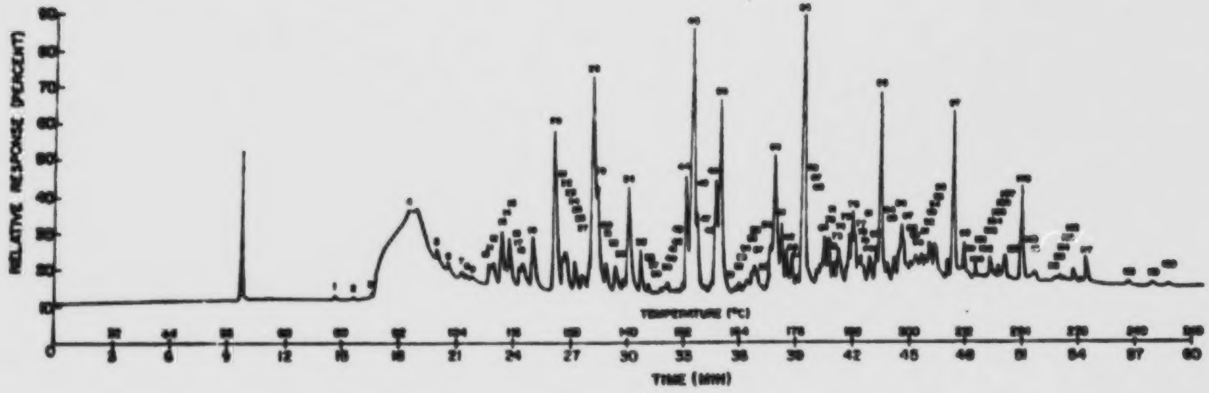

Figure A3. Profile of ambient air pollutants for Wood River, IL using high resolution gas chromatography/mass spectrometry/computer.

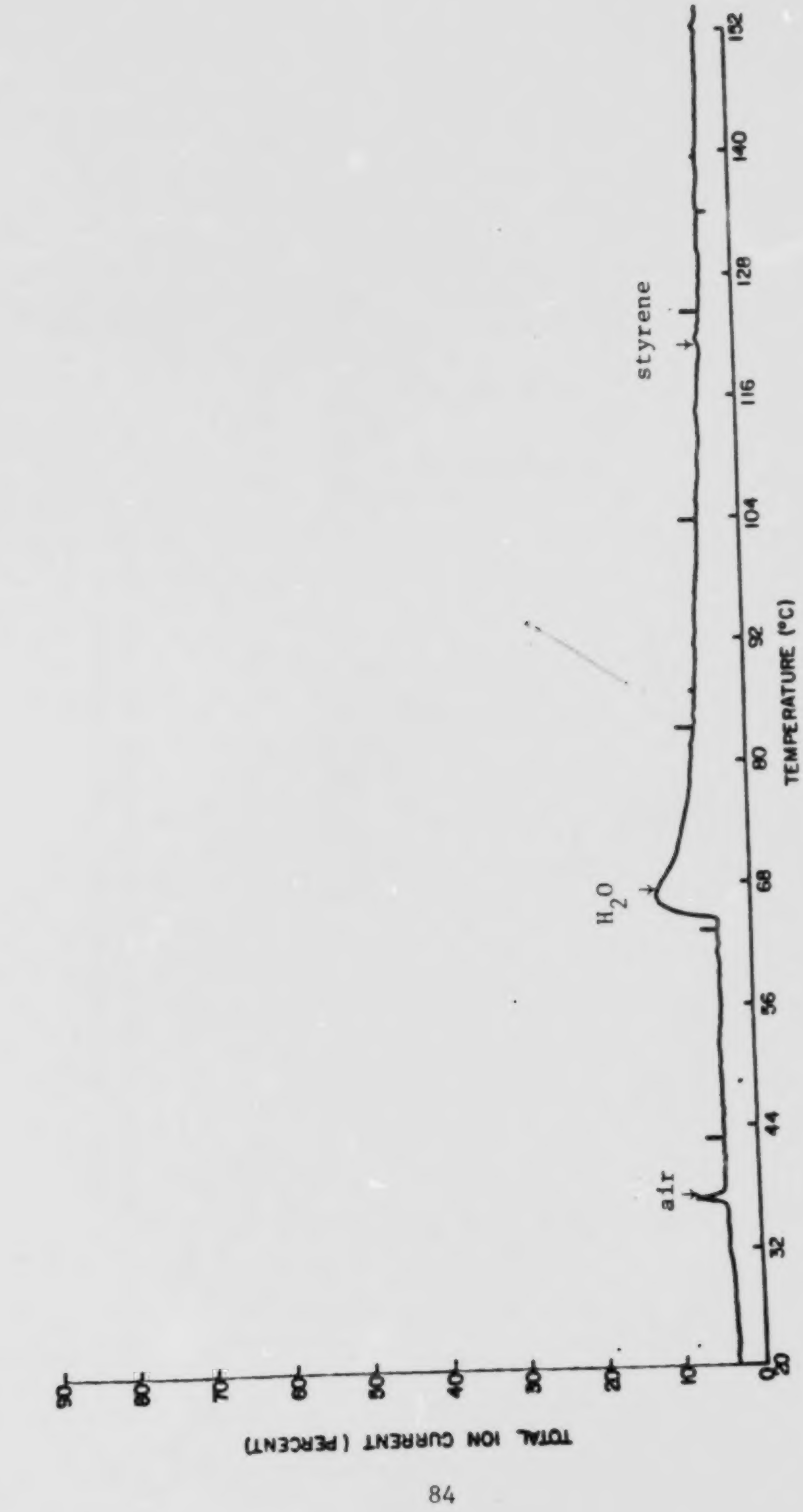

Figure A4. Background profile for Tenax GC cartridge blank.

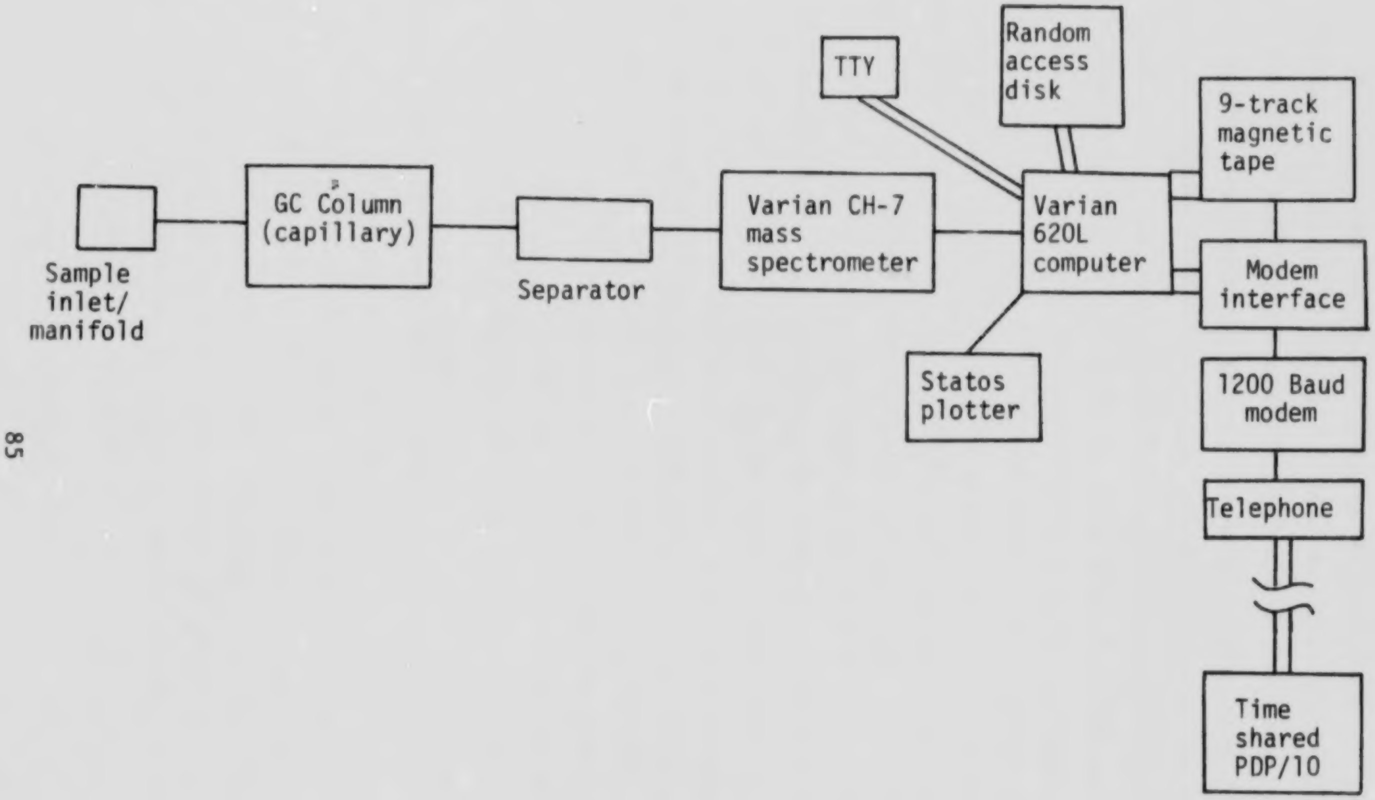
Sample inlet/ manifold
GC Column (capillary)
Separator
Varian CH-7 mass spectrometer
TTY
Random access disk
Varian 620L computer
Statos plotter
9-track magnetic tape
Modem interface
1200 Baud modem
Telephone
Time shared PDP/10

Figure A5. Schematic diagram of GC/MS/Computer system.

approximately 30 total ion current values and an equal number of Hall probe signals are stored in the core of the computer as they are acquired. During the two-second period between scans this spectral information, along with the spectrum number, is written sequentially on disks, and the computer is reset for the acquisition of the next spectrum.

This procedure continues until the entire GC run is completed. By this time there are from 800-1400 spectra on the disk which are then subsequently processed. Depending on the information required, they may then either be processed immediately or additional samples may be run, stored on magnetic tape and the results examined at a later time.

The mass spectral data are processed in the following manner. First, the original spectra are scanned and the total ion current (TIC) information is extracted. Then the TIC intensities are plotted against the spectrum number on the Statos 31 recorder. The information will generally indicate whether the run is suitable for further processing, since it provides some idea of the number of unknowns in the sample and the resolution obtained using the particular GC column conditions.

The next stage of the processing involves the mass conversion of the spectral peak times to peak masses which is done directly via the dual disk system. The mass conversion is accomplished by use of the calibration table obtained previously using perfluorokerosene. Normally one set of the calibration data is sufficient for an entire day's data processing since the characteristics of the Hall probe are such that the variation in calibration is less than 0.2 daltons/day. A typical time required for this conversion process for 1,000 spectra is approximately 30 min.

After the spectra are obtained in mass converted form, processing proceeds either manually or by computer. In the manual mode, the full spectrum of scans for the GC run is recorded on the Statos 31 plotter. The TIC information available at this time is most useful for deciding which spectra are to be analyzed. At the beginning of the runs where peaks are very sharp nearly every spectrum must be inspected individually to determine the identity of the component. Later in the chromatographic run when the peaks are broader only selected scans need to be analyzed.

Identification of resolved components is achieved by comparing the mass cracking patterns of the unknown mass spectra to an eight major peak index of mass spectra (9). Individual difficult unknowns are searched by the use of the Cornell University STIRS and PBM systems. Unknowns are also submitted to EPA MSSS system for identification. When feasible, the identification of unknowns is confirmed by comparing the cracking pattern and elution temperatures for two different chromatographic columns (SE-30 and Carbowax SCOT capillaries) for the unknown and authentic compounds. The relationship between the boiling point of the identified halogenated hydrocarbon and the elution temperature on a non-polar column (the order of elution of constituents is predictable in homologous series since the SE-30 SCOT capillary separates primarily on the basis of boiling point) is carefully considered in making structure assignments.

Mass spectral search programs are operational at the Triangle Universities Computation Center (TUCC). RTI maintains twice daily service to TUCC, which is a one-quarter mile distance from the RTI campus. Additional information about each magnetic tape containing the mass spectra of halogenated hydrocarbons is entered directly into the TUCC job stream using a remote job entry processing. This is normally done at TUCC using one of the five terminals located within the Analytical Sciences Laboratory. The control information contains selected spectrum numbers with instructions to process entire GC runs. The computer program systems compare simultaneously either the entire library of 25,000 compounds or some subset of this library. The complete reports showing the best fits for each of the unknowns is produced at TUCC and printed out at the high speed terminals located on the RTI campus or TUCC. Thus, the processing of the mass spectral data obtained for the halogenated hydrocarbons in the samples collected proceeds by one of three routes. Each consists of a different level of effort. The first level is strictly a manual interpretation process which proves to be the most thorough approach. The second level is executed when the interpretation at the first level has not yielded conclusive results.

Quantitative Analysis--In many cases the estimation of the level of pollutants by capillary gas chromatography in combination with mass spectrometry is not feasible utilizing only the total ion current monitor (See Figure A3 for example). Since baseline resolution between peaks is not always achieved, we employ the techniques which have been previously developed under contract whereby full spectra are obtained during the chromatographic separation step and the selected ions are presented as mass fragmentograms using computer software programs which allow the possibility of deconvoluting constituents which were not resolved in the total ion current chromatogram (6). Examples are depicted in Figures A6 and A7 which represent an ambient air sample with a TIC profile as in Figure A3.

In our gc/ms/comp system, we request from the Varian 620/L dedicated computer mass fragmentograms for any combination of m/e ions when full mass spectra are obtained during chromatography; thus selectivity is obtained by selecting the unique ion for that particular organic substance and this is represented vs. time with subsequent use of that ion intensity for quantitation. Also quantitation with external standards is easily achieved using the intensity of the total ion current monitor or the use of a unique mass cracking ion in a mass spectrum of the external standard. Thus, we use mass fragmentography for the quantitation of organics in ambient air when the total ion current monitor is inadequate because of the lack of complete resolution between components in the mixture.

As described previously, the quantitation of constituents in ambient air samples is accomplished either by utilizing the total ion current monitor or where necessary the use of mass fragmentograms. In order to eliminate the need to obtain complete calibration curves for each compound for which quantitative information is desired, we use the method of relative molar response (RMR) factors (10). Successful use of this method requires information on the exact amount of standard added and the relationship of RMR (unknown) to the RMR (standards). The method of calculations is as follows:

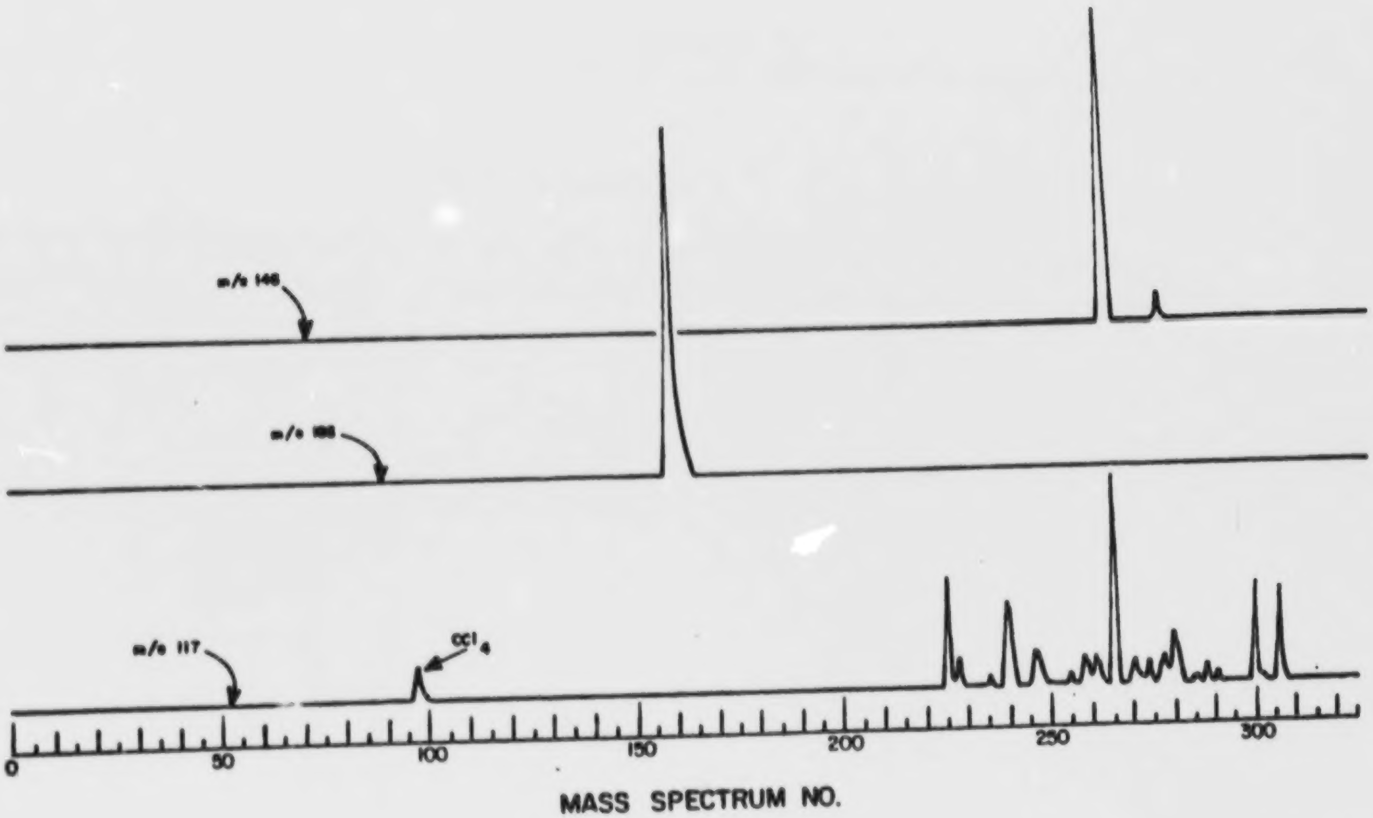

Figure A6. Mass fragmentograms of characteristic ions representing carbon tetrachloride (m/ 117), tetrachloroethylene (m/z 166) and m-dichlorobenzene (m/z 146) in ambient air.

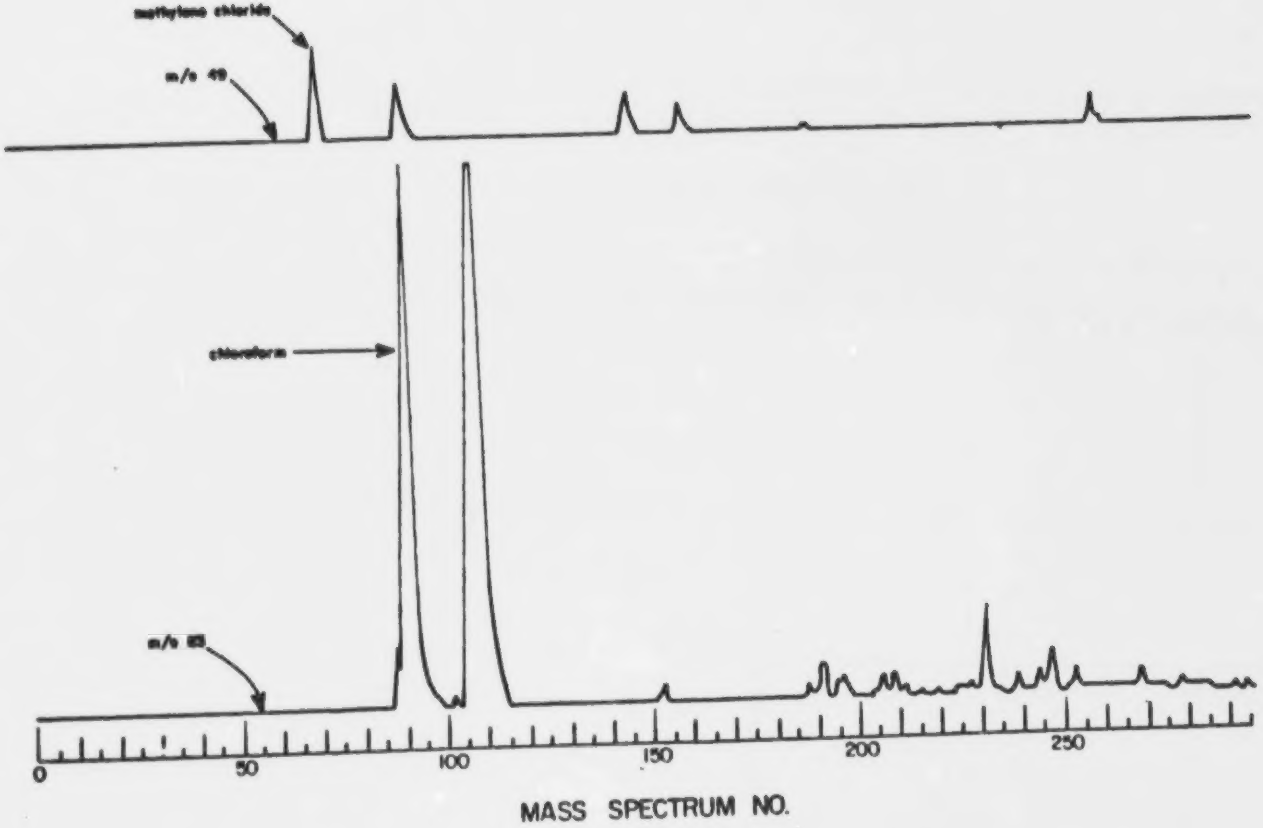

Figure A7. Mass fragmentograms of characteristic ions representing methylene chloride (m/z 49) and chloroform (m/z 83) in ambient air.

$$(1)\quad RMR_{unknown/standard} = \frac{A_{unk}/Moles_{unk}}{A_{std}/Moles_{std}}$$

A = peak area, determined by integration or triangulation.

The value of RMR is determined from at least three independent analyses.

$$(2)\quad RMR_{unk/std} = \frac{A_{unk}/g_{unk}/GMW_{unk}}{A_{std}/g_{std}/GMW_{std}}$$

A = peak area, as above
g = number of grams present
GMW = gram molecular weight

Thus, in the sample analyzed:

$$(3)\quad g_{unk} = \frac{A_{unk}\cdot GMW_{unk}\cdot g_{std}}{A_{std}\cdot GMW_{std}\cdot RMR_{unk/std}}$$

The standard can be added as an internal standard during sampling; however, since the volume of air taken to produce a given sample is accurately known, it is also possible and more practical to use an external standard where the standard is introduced into the cartridge prior to its analysis. Two standards, hexafluorobenzene and perfluorotoluene, are used for the purpose of calculating RMR's. From previous research it has been determined that the retention times for these two compounds are such that they elute from the glass capillary column (SE-30) at a temperature and retention time which does not interfere with the analysis of unknown compounds in ambient air samples.

Since the volume of air taken to produce a given sample is accurately known and an external standard is added to the sample, then the weight per cartridge and hence the concentration of the unknown can be determined. The approach for quantitating ambient air pollutants requires that the RMR be determined for each constituent of interest. This means that when an ambient air sample is taken, the external standard is added at a known concentration during the analysis. It is not imperative at this point to know what the RMR of each of the constituents in the sample happens to be. However, after the unknowns are identified then the RMR can be subsequently determined and the unknown concentration calculated in the original sample using the RMR. In this manner it is possible to obtain qualitative and quantitative information on the same sample with a minimum of effort.

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Written analytical protocol prepared 1/24/77.

SAMPLING AND ANALYSIS FOR POLYCHLORINATED BIPHENYLS AND OTHER SEMI-VOLATILE ORGANICS IN AMBIENT AIR

1.0 PROCEDURE FOR CLEANUP OF POLYURETHANE FOAM PLUGS

1. Cut 5 cm diameter x 13 cm long plugs from sheet of Olympic® 2315 polyurethane foam.
2. Mark each plug with an identification number in the top using a hot wire.
3. Place four plugs in bottom of clean four liter beaker, add 500 ml hot toluene (100°C).
4. Compress the plugs 10 times using a one liter Erlenmeyer flask.
5. Let sit five minutes on steam bath.
6. Repeat Steps 4 and 5.
7. Compress the plugs and decant the toluene.
8. Add 250 ml fresh, hot toluene and repeat steps 4 through 7.
9. Repeat Step 8 three times (total of five extractions).
10. Using clean tweezers, transfer each plug into a foil-wrapped wide-mouth jar and cover loosely with a foil-lined cap.
11. Dry *in vacuo* at 50° for 12 hours.
12. Remove from oven, tighten cap and store away from potential contaminants.

2.0 PROCEDURE FOR EXTRACTION OF POLYCHLORINATED BIPHENYLS FROM POLYURETHANE FOAM PLUGS AND GLASS FIBER FILTERS

1. Using cleaned tongs, remove foam plugs and filters from storage jars and place them in 400 ml beakers.
2. Add 150 ml of toluene to beakers containing foam plugs and 50 ml toluene to beakers containing filters.
3. Compress the foam plug 10 times to the bottom of the beakers with a 125 ml Erlenmeyer flask, soak for five minutes and compress an additional 10 times.
4. Squeeze the toluene out of the plug and decant into a flat bottom boiling flask. Similarly decant the toluene from the glass fiber filter into a separate flask.
5. Repeat Steps 2 through 4 two more times.
6. Concentrate in a flat bottom boiling flask topped with a Snyder column to approximately 15 ml.

7. Transfer concentrate to 1.5 x 120 mm culture tube, assuring quantitative transfer with small portions of petroleum ether. Blow down under N_2 at $\leq 25°C$ just to dryness.

8. Dilute to approximately 1 ml with hexane and proceed with column cleanup.

9. Concentrate column eluant with a Kuderna-Danish (K-D) apparatus to 2.0 ml.

3.0 COLUMN CLEANUP PROCEDURE

1. Silica gel (Davison Chemical Division, W. H. Grace, Baltimore, MD), Grade 923, 100-200 mesh is washed with toluene, followed by hexane, dried at 130° for 16 hr and stored in a sealed amber bottle.
2. Using a 1.0 x 30 cm glass column, pack with a plug of glass wool, silica gel in a hexane slurry to 10 cm height, and 1.0 cm Na_2SO_4.
3. Wash column with 50 ml hexane to settle the bed and clean any residual contaminants.
4. Transfer sample to column in 1.0 ml or less solvent (preferably hexane) with washing.
5. Elute the PCB's with 50 ml hexane.
6. The foam background and pesticides are eluted with toluene.
7. Concentrate hexane eluate in K-D apparatus, followed by nitrogen blow down if necessary to achieve a detectable concentration.
8. Analyze by GC/ECD or GC/MS as described elsewhere.

4.0 GAS CHROMATOGRAPHY/MASS SPECTROMETER ANALYTICAL CONDITIONS

Instrument: Finnigan 3300 Quadrupole gas chromatograph/mass spectrometer with PDP/12 computer

Column: 180 cm x 2 mm i.d. glass

Column Packing: 2% OV-101 on Chromosorb W HP

Oven Temperature: 150°, 3 min, 8°/min to 230°, Hold

Flow Rate: 30 cc/min, helium

MID Ions: 188, 222, 256, 290, 324, 358, 392 426 (nominal)

Full Scan: 110-500 m/e

Ionization Voltage: 70 eV (nominal)

Detector Voltage: 1.8 - 2.2 kV

APPENDIX B

ORGANIC VAPORS IDENTIFIED IN AMBIENT AIR

Table B1. VOLATILE ORGANIC VAPORS IN AMBIENT AIR FROM LINDEN, NJ (P4/L5)[a]

Chromatographic Peak No.	Elution Temp. (°C)	Compound
1	48	CO_2
1A	55	acetaldehyde
1B	60	isopentane
3	62	acetone
4	63	*n*-pentane
5	64	diethyl ether
5A	64	dichloroethylene isomer
6	65	dichloromethane
7A	71	C_4H_8O isomer (tent.)
8	72	C_5H_{10} isomer
8A	73	2-methylpentane
9	75	3-methylpentane
10	76	hexafluorobenzene (e[illegible])
11	77	*n*-hexane
12	78	chloroform
12A	80	ethyl acetate
13	81	perfluorotoluene (e[illegible])
14	82	methylcyclopentane
14A	84	1,1,1-trichloroethane
15	87	benzene
15A	88	carbon tetrachloride
16	89	cyclohexane
16A	90	2-methylhexane
16B	90	2,3-dimethylpentane
17	91	3-methylhexane
18A	94	*n*-pentanal
18B	94	trichloroethylene
18C	94	C_8H_{18} isomer
19	96	*n*-heptane
19A	96	C_7H_{14} isomer
20	97	acetic acid
21	101	methylcyclohexane
21A	103	C_8H_{18} isomer
21B	107	C_8H_{16} isomer
22	108	toluene
22A	109	C_8H_{18} isomer
23	110	C_8H_{18} isomer
23A	111	C_8H_{16} isomer
24	112	*n*-hexanal
24A	113	C_8H_{16} isomer
25	115	*n*-octane
26	117	tetrachloroethylene
26A	118	C_8H_{16} isomer
27A	122	C_9H_{20} isomer
28	123	C_8H_{16} isomer
28A	124	C_9H_{18} isomer
29	126	ethylbenzene
29A	127	C_9H_{18} isomer
30	126	xylene isomer
30A	128	C_9H_{20} isomer
30B	129	C_9H_{20} isomer
31	131	$C_{10}H_{22}$ isomer
31A	131	styrene isomer
31B	132	*n*-heptanal
32	132	*o*-xylene + $C_{10}H_{22}$ isomer
32A	133	C_9H_{18} isomer
33	134	*n*-nonane
34	135	$C_{10}H_{22}$ isomer
34A	136	C_9H_{18} isomer
34B	137	$C_{10}H_{20}$ isomer
35	138	$C_{10}H_{22}$ isomer + isopropylbenzene
35A	139	$C_{10}H_{22}$ isomer
36	141	$C_{11}H_{24}$ isomer
36A	142	$C_{10}H_{20}$ isomer
37	143	benzaldehyde
37A	144	*n*-propylbenzene
38	145	ethyltoluene isomer
38A	146	$C_{10}H_{22}$ isomer
38B	146	1,3,5-trimethylbenzene
39	147	$C_{11}H_{24}$ isomer
39A	148	C_3H_5-benzene isomer
40	148	$C_{11}H_{24}$ isomer + *o*-ethyltoluene
41	149	$C_{10}H_{22}$ isomer
41A	150	$C_{11}H_{24}$ isomer
42	150	*n*-octanal
43	151	1,2,4-trimethylbenzene
43A	152	$C_{10}H_{20}$ isomer
44	152	*n*-decane
44A	153	dichlorobenzene isomer (trace)
44B	154	C_4-alkyl benzene + $C_{11}H_{22}$ isomers
44C	156	1,2,3-trimethylbenzene
44D	156	C_4-alkyl benzene isomer
44E	157	$C_{11}H_{24}$ isomer
45	157	$C_{12}H_{26}$ + dichlorobenzene isomers
45A	158	indan
45B	159	$C_{10}H_{20}$ isomer
45C	159	$C_{11}H_{22}$ isomer
46	160	$C_{11}H_{24}$ isomer
46A	161	C_4-alkyl benzene isomer

(continued)

Table B1 (cont'd)

Chromato- graphic Peak No.	Elution Temp. (°C)	Compound
47	162	acetophenone
47A	163	$C_{11}H_{24}$ isomer
47B	164	cresol isomer
47C	165	C_4-alkyl benzene + $C_{11}H_{24}$ isomers
47D	166	C_4-alkyl benzene isomer
47E	166	$C_9H_{18}O$ isomer
47F	167	C_4-alkyl benzene isomer
48	168	n-nonanal
48A	169	$C_{11}H_{22}$ isomer
49	170	n-undecane
49A	172	$C_{12}H_{24}$ isomer
49B	173	C_4-alkyl benzene isomer
49C	175	dimethylphenol isomer
49D	177	C_4H_7-benzene + C_5-alkyl benzene isomers
49E	177	$C_{11}H_{22}$ isomer
49F	182	C_5-alkyl benzene isomer
49G	182	$C_{10}H_{20}O$ isomer
49H	184	naphthalene
50	184	n-decanal
50A	185	$C_{12}H_{24}$ isomer
51	186	n-dodecane
51A	187	C_5-alkyl benzene isomer
51B	188	$C_{13}H_{28}$ isomer
51C	197	$C_{11}H_{22}O$ isomer
52	199	n-undecanal
53	200	n-tridecane
53A	201	β-methylnaphthalene
53B	203	α-methylnaphthalene
53C	206	$C_{14}H_{30}$ isomer
53D	208	alkyl phthalate
54	210	alkyl phthalate
54A	211	biphenyl
55	213	n-tetradecane
55A	215	$C_{15}H_{30}$ isomer
55B	215	C_2-alkyl naphthalene isomer
55C	217	alkyl ketone
55D	218	$C_{13}H_{26}O$ isomer
55E	219	n-pentadecane
55F	221	$C_{15}H_{30}$ isomer

[a] See Table 7 for sampling protocol.

Table B2. VOLATILE ORGANIC VAPORS IN AMBIENT AIR FROM STATEN ISLAND, NY (P6/L9)[a]

Chromato-graphic Peak No.	Elution Temp. (°C)	Compound
1	48	CO_2
4	53	C_4H_{10} isomer
4A	54	acetaldehyde
4B	59	isopentane
5A	60	furan + propanal + C_5H_{10} isomer
6	61	*n*-pentane
6A	61	acetone
6B	62	diethyl ether (tent.)
7	63	methylene chloride
8	68	ter-butanol
8A	69	C_5H_{10} isomer
9	70	2-methylpentane
10	73	3-methylpentane
10A	74	butanal + C_6H_{12} isomer
11	75	hexafluorobenzene (e■)
12	76	*n*-hexane
12A	77	chloroform
13	78	C_6H_{12} isomer (tent.)
14	80	perfluorotoluene (e■)
14A	81	methylcyclopentane
15	82	C_7H_{14} isomer (tent.)
15A	83	1,1,1-trichloroethane
15B	85	C_6H_{10} isomer
16	86	benzene
16A	87	carbon tetrachloride (traces)
17	88	cyclohexane
17A	89	2-methylhexane
17B	90	2,3-dimethylpentane
18	91	3-methylhexane
20	94	C_8H_{18} isomer
21	95	acetic acid
21A	96	*n*-heptane
21B	98	C_7H_{14} isomer
22	101	methylcyclohexane
22A	102	C_8H_{18} isomer
23	103	C_8H_{18} isomer
23A	105	C_8H_{16} isomer
24	106	C_8H_{18} isomer
25	108	toluene
26	109	C_8H_{18} isomer
27	110	C_8H_{18} isomer
27A	111	C_8H_{16} isomer
27B	112	C_8H_{16} isomer
28	113	C_8H_{18} isomer
28A	113	*n*-hexanal
28B	114	C_8H_{16} isomer
29	116	*n*-octane
29A	117	C_8H_{16} isomer
30	117	tetrachloroethylene
30A	122	C_9H_{20} isomer
31	124	C_9H_{20} isomer
31A	125	C_9H_{18} isomer (tent.)
31B	126	C_9H_{18} isomer
32	127	ethylbenzene
32A	128	C_9H_{18} isomer
33	129	xylene isomer
33A	129	C_9H_{20} isomer
34	130	C_9H_{20} isomer
35	132	C_9H_{20} isomer
35A	132	styrene
36	133	*o*-xylene
36A	134	C_9H_{18} isomer
37	136	*n*-nonane
37A	139	C_9H_{18} isomer
38	140	$C_{10}H_{22}$ isomer + isopropylbenzene
38A	142	$C_{10}H_{22}$ isomer
39	143	$C_{10}H_{22}$ + C_9H_{18} isomers
39A	144	$C_{10}H_{16}$ isomer
40	145	benzaldehyde
40A	146	C_3-alkyl benzene isomer
41	147	ethyltoluene isomer
41A	148	1,3,5-trimethylbenzene
41B	148	phenol
42	148	$C_{11}H_{24}$ isomer
42A	150	*o*-ethyltoluene
42B	151	sat. hydrocarbon
42C	152	*n*-octanal
42D	152	$C_{10}H_{20}$ isomer
43	153	1,2,4-trimethylbenzene
43A	153	$C_{10}H_{20}$ isomer
44	154	*n*-decane
44A	155	$C_{11}H_{24}$ isomer
44B	155	dichlorobenzene isomer
44C	156	C_4-alkyl benzene isomer
44D	158	1,2,3-trimethylbenzene
44E	159	$C_{11}H_{24}$ isomer
45	160	$C_{11}H_{24}$ + dichlorobenzene isomers
45A	161	indan
45B	161	$C_{11}H_{22}$ isomer

(continued)

Table B2 (cont'd)

Chromatographic Peak No.	Elution Temp. (°C)	Compound
45C	163	C_4-alkyl benzene isomer
45D	164	C_4-alkyl benzene isomer
46	164	acetophenone
46A	165	cresol isomer
46B	166	C_4-alkyl benzene isomer
46C	167	$C_{12}H_{26}$ isomer (tent.)
46D	168	C_4-alkyl benzene isomer
46E	169	C_4-alkyl benzene isomer
47	170	n-nonanal
47A	171	$C_{11}H_{22}$ isomer (tent.)
48	172	n-undecane
48A	174	C_4-alkyl benzene isomer
48B	175	C_4-alkyl benzene isomer (tent.)
48C	177	C_2-alkyl phenol isomer
48D	178	dimethylphenol isomer
48E	179	unsat. hydrocarbon
48F	180	C_2-alkyl phenol isomer
48G	184	$C_{12}H_{24}$ isomer
48H	185	$C_{12}H_{24}$ + C_3-alkyl phenol isomers
49	186	naphthalene
49A	187	$C_{12}H_{24}$ isomer
50	188	n-dodecane
50A	191	unsat. hydrocarbon
50B	195	$C_{13}H_{26}$ isomer
50C	200	unsat. hydrocarbon
50D	202	$C_{13}H_{26}$ isomer
50E	203	n-tridecane
50F	203	β-methylnaphthalene
50G	206	α-methylnaphthalene
50H	209	unsat. hydrocarbon
50I	212	$C_{15}H_{32}$ isomer
51	213	alkyl butyrate
51A	217	n-tetradecane
52A	229	$C_{15}H_{30}$ isomer
52B	230	n-pentadecane

[a] See Table 7 for sampling protocol.

Table B3. VOLATILE ORGANIC VAPORS IDENTIFIED IN AMBIENT AIR FROM STATEN ISLAND, NY (P6/L8)[a]

Chromatographic Peak No.	Elution Temp. (°C)	Compound
1	48	CO_2
4	53	isobutane (tent.)
4A	55	n-butane
4B	55	acetaldehyde
4C	58	isopentane
5A	60	C_5H_{10} isomer
6	61	acetone
6A	61	n-pentane
7	62	diethyl ether
7A	63	dichloroethylene isomer (tent.)
8	63	methylene chloride
9A	67	ter-butanol (tent.)
9B	68	C_5H_{10} isomer
10	69	2-methylpentane
10A	70	C_6H_{12} isomer
11	72	3-methylpentane
12	73	hexafluorobenzene (es)
13	74	n-hexane
13A	75	chloroform
14	76	methyl ethyl ketone
14A	77	ethyl acetate
15	79	perfluorotoluene (es)
15A	80	methylcyclopentane
15B	82	1,1,1-trichloroethane
16	84	benzene
16A	85	carbon tetrachloride
17	86	cyclohexane
17A	87	2-methylhexane
17B	88	2,3-dimethylpentane
18	89	3-methylhexane
18A	91	C_7H_{14} isomer
18B	92	trichloroethylene
19	92	acetic acid
20	94	n-heptane
20A	99	methylcyclopentane
21	101	4-methyl-2-pentanone
21A	104	C_8H_{16} isomer
22	106	toluene
22A	108	C_8H_{18} isomer
22B	109	C_8H_{18} isomer
22C	110	C_8H_{16} isomer
22D	111	C_8H_{16} isomer
22E	113	C_8H_{16} isomer
23	114	n-octane
23A	115	C_8H_{16} isomer
24	116	tetrachloroethylene
24A	117	C_8H_{16} isomer
24B	117	$C_6H_{12}O$ isomer (tent.)
24C	120	C_9H_{20} isomer
24D	121	C_9H_{18} isomer
24E	122	C_8H_{16} isomer + chlorobenzene (tent.)
24F	123	C_9H_{18} isomer
24G	124	C_9H_{18} isomer
25	126	ethylbenzene
26	128	xylene isomer
26A	128	C_9H_{20} isomer
26B	129	$C_{10}H_{22}$ isomer
27	131	$C_{10}H_{22}$ isomer
27A	131	styrene
28	132	o-xylene + $C_{10}H_{22}$ isomer
28A	133	n-heptanal (tent.)
28B	134	C_9H_{18} isomer
29	135	n-nonane
29A	137	C_9H_{18} isomer
29B	137	$C_{10}H_{20}$ isomer
30	138	$C_{10}H_{22}$ isomer + isopropylbenzene
30A	140	$C_{11}H_{24}$ isomer
31	141	$C_{10}H_{22}$ isomer
31A	142	$C_{10}H_{20}$ isomer
32	144	benzaldehyde + n-propylbenzene
33	145	ethyltoluene
33A	146	1,3,5-trimethylbenzene
33B	147	$C_{10}H_{22}$ isomer
34	147	$C_{11}H_{24}$ isomer
34A	148	phenol
34B	149	o-ethyltoluene
34C	149	$C_{11}H_{24}$ isomer
35	150	$C_{10}H_{22}$ isomer
35A	151	n-octanal
36	152	1,2,4-trimethylbenzene
36A	152	$C_{11}H_{24}$ isomer
37	153	n-decane
37A	154	dichlorobenzene isomer (tent.)
37B	156	C_4-alkyl benzene isomer
37C	157	1,2,3-trimethylbenzene
38	158	$C_{11}H_{24}$ isomer
39	159	$C_{12}H_{26}$ isomer
39A	159	dichlorobenzene isomer
39B	161	C_9H_{18} isomer

(continued)

Table B3 (cont'd)

Chromato-graphic Peak No.	Elution Temp. (°C)	Compound
40	162	C_4-alkyl benzene + isomers
40A	163	C_4-alkyl benzene isomer
41	163	acetophenone
41A	164	C_4-alkyl benzene isomer
41B	165	$C_{11}H_{24}$ isomer
41C	166	C_4-alkyl benzene isomer
41D	168	$C_{11}H_{22}$ isomer
41E	169	n-nonanal
41F	169	$C_{11}H_{22}$ isomer
42	171	n-undecane
42A	172	$C_{11}H_{22}$ isomer
42B	173	C_4-alkyl benzene isomer
42C	178	$C_{11}H_{22}$ isomer
42D	178	$C_{11}H_{20}$ isomer
42E	179	C_5-alkyl benzene isomer
42F	180	$C_{12}H_{26}$ isomer
42G	181	C_5-alkyl benzene isomer
42H	183	$C_{13}H_{26}$ isomer
42I	185	naphthalene
43	185	n-decanal
43A	186	$C_{12}H_{24}$ isomer
44	187	n-dodecane
44A	188	$C_{12}H_{24}$ isomer
44B	189	$C_{13}H_{28}$ isomer
44C	190	$C_{13}H_{26}$ isomer
44D	194	$C_{12}H_{24}$ isomer
45	198	$C_{14}H_{30}$ isomer
45A	199	$C_{13}H_{26}$ isomer
46	202	n-tridecane
46A	202	β-methylnaphthalene
46B	203	$C_{13}H_{26}$ isomer
46C	204	α-methylnaphthalene
46D	207	$C_{14}H_{28}$ isomer
46E	209	$C_{13}H_{26}$ isomer
46F	210	sat. hydrocarbon
47	212	alkyl butyrate
47A	213	$C_{15}H_{32}$ isomer
48	216	n-tetradecane
48A	218	C_2-alkyl naphthalene
48B	220	C_2-alkyl naphthalene
48C	222	$C_{15}H_{30}$ isomer
48D	223	$C_{14}H_{28}$ isomer
48E	227	$C_{14}H_{20}$ isomer
49	229	n-pentadecane
49A	231	$C_{16}H_{32}$ isomer
50A	240	n-hexadecane

[a] See Table 7 for sampling protocol and locations.

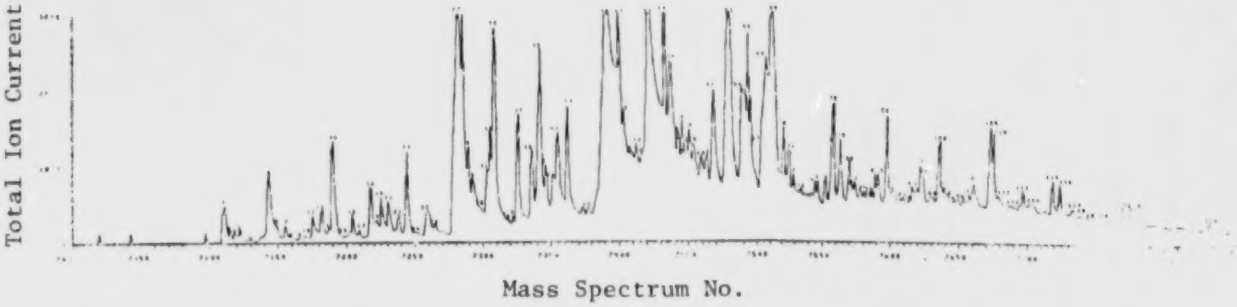


Figure B1. GC/MS/COMP profile of volatile organic vapors in ambient air from L5 (see Table 8 for protocol).

Table B4. VOLATILE ORGANIC VAPORS IDENTIFIED IN AIR FROM HOUSEHOLD BASEMENT (L5), NIAGARA, NY[a]

Chromato-graphic Peak No.	Elution Temp. (°C)	Compound
1	57	CO_2
2A	60	propane
3	61	acetaldehyde
3A	62	C_4H_8 isomer
3B	62	C_4H_{10} isomer
4	64	C_3H_8O isomer (tent.)
4A	66	ethanol
4B	67	C_5H_{12} isomer
5	68	acetone
6	70	n-pentane
6A	70	C_5H_8 isomer
6B	71	dichloroethylene
7	72	methylene chloride
7A	73	ter-butanol (tent.)
9	75	C_4H_8O + C_3H_8O isomers (tent.)
10	77	butenal isomer
11	79	2-methylpentane
11A	79	C_5H_{10} isomer
11B	80	butanal
11C	80	methyl ethyl ketone
12	81	3-methylpentane
12A	82	C_6H_{12} isomer
13	83	hexafluorobenzene (eS) + methylfuran isomer
14	84	n-hexane
14A	84	chloroform
14B	86	C_6H_{12} isomer
15	88	perfluorotoluene (eS)
16	88	methylcyclopentane
17	90	1,1,1-trichloroethane
17A	92	methyl isopropyl ketone
17B	92	isopropyl acetate
18	93	benzene
18A	94	carbon tetrachloride (traces)
19	95	acetic acid + cyclohexane
20	96	2-methylhexane
20A	96	$C_5H_{10}O$ isomer
21	97	3-methylhexane
21A	98	n-pentanal
21B	99	C_7H_{14} isomer
22	100	trichloroethylene
22A	101	$C_5H_{12}O$ isomer (tent.)
22B	101	C_7H_{12} + C_7H_{14} isomers
23	102	n-heptane
23A	103	C_7H_{14} isomer
24	104	C_7H_{14} isomer
24A	107	C_7H_{14} isomer
25	107	4-methyl-2-pentanone
26	109	C_8H_{18} + C_8H_{14} isomers
26A	110	C_8H_{16} isomer
26B	112	C_8H_{16} isomer
27	114	toluene
27A	116	C_8H_{18} isomer
28	117	C_8H_{18} isomer
29	118	$C_6H_{12}O$ isomer (tent.)
29A	118	C_8H_{16} isomer
30	120	C_8H_{16} isomer
30A	121	C_8H_{16} isomer
31	122	n-butyl acetate
32	123	n-octane
33	124	tetrachloroethylene
35	127	C_9H_{20} isomer
36	128	C_9H_{20} isomer
37	129	chlorobenzene
37A	130	chlorobenzotrifluoride (traces)
37B	132	C_9H_{18} isomer
38	133	ethylbenzene
39	135	xylene isomer
39A	135	C_9H_{20} isomer
39B	136	C_9H_{20} isomer
41	138	styrene
42	140	o-xylene
42A	141	C_9H_{18} isomer
43	142	n-nonane
43A	144	C_9H_{18} isomer
44	146	isopropylbenzene + $C_{10}H_{22}$ isomer
45	147	$C_{10}H_{22}$ isomer
45A	148	C_3-alkyl cyclohexane isomer
45B	149	$C_{10}H_{22}$ isomer
46	151	chlorotoluene isomer
47	155	C_3-alkyl benzene + $C_{10}H_{22}$ isomers
48	156	$C_{10}H_{22}$ isomer
49	157	$C_{10}H_{20}$ + C_3-alkyl benzene isomers
50	159	heptanoic acid (tent.) + $C_{10}H_{20}$ isomer
50A	160	C_3-alkyl benzene isomer
52	161	dichlorobenzene isomer
52A	165	C_4-alkyl benzene isomer

(continued)

Table B4 (cont'd)

Chromato-graphic Peak No.	Elution Temp. (°C)	Compound
53	165	C_3-alkyl benzene + $C_{11}H_{24}$ isomers
54	167	$C_{11}H_{22}$ + $C_{10}H_{16}$ isomers
54A	168	bromotoluene isomer
55	169	C_4-alkyl benzene + sat. hydrocarbon isomers
56	170	C_4-alkyl benzene isomer
57	171	$C_{11}H_{24}$ isomer
58	172	$C_{11}H_{24}$ isomer
59	173	$C_{11}H_{24}$ + $C_{10}H_{16}$ isomers
59A	174	C_4-alkyl benzene isomer
60	175	C_4-alkyl benzene + C_4H_7-benzene isomers
61	176	$C_{11}H_{22}$ isomer
61A	177	$C_{11}H_{22}$ isomer
62	177	n-undecane
62A	179	chlorobenzaldehyde isomer
63	181	dichlorotoluene isomer
63A	182	pentachlorobutadiene
63B	183	trichlorobenzene isomer
63C	183	C_5-alkyl benzene isomer
64	184	$C_{10}H_{16}O$ isomer
65	185	dichlorotoluene isomer
67	189	trichlorobenzene isomer
68	190	trichlorobenzene isomer
69	192	napthalene
69A	193	methyl salicylate
69B	194	$C_{12}H_{26}$ isomer
70	195	trichlorobenzene isomer
71	197	1,3-hexachlorobutadiene
72	198	unknown
72A	199	unsat. hydrocarbon
73	200	$C_{13}H_{26}$ isomer
73A	201	sat. hydrocarbon
74	203	trichlorotoluene isomer
75	204	$C_{14}H_{28}$ isomer
76	205	$C_{10}H_{18}$ isomer
76A	206	$C_{10}H_{16}$ isomer (tent.)
77	207	n-tridecane
78	208	trichlorotoluene isomer
78A	208	β-methylnaphthalene
79	209	trichlorotoluene isomer
79A	210	α-methylnaphthalene
80	212	$C_{14}H_{30}$ isomer (tent.)
81	213	tetrachlorobenzene isomer
82	213	trichlorotoluene isomer
83	214	$C_{13}H_{26}$ isomer
84	215	$C_{14}H_{30}$ isomer
85	216	$C_{14}H_{30}$ isomer
86	216	sat. hydrocarbon
87	217	sat. hydrocarbon
88	218	biphenyl
89	219	tetrachlorobenzene isomer
89A	220	$C_{14}H_{28}$ isomer
90	221	n-tetradecane
91	222	C_2-alkyl naphthalene isomer
91A	223	$C_{15}H_{30}$ isomer
92	224	C_2-alkyl naphthalene isomer
93	225	$C_{15}H_{30}$ isomer
94	226	unsat. hydrocarbon
95	227	C_9-alkyl benzene isomer (tent.)
96	228	$C_{14}H_{28}$ isomer
96A	229	$C_{15}H_{28}$ isomer
97	229	$C_{16}H_{34}$ isomer
98	230	$C_{15}H_{24}O$ isomer (tent.)
99	232	tetrachlorotoluene isomer
100	233	n-pentadecane
101	234	$C_{15}H_{30}$ isomer
102	235	C_3-alkyl naphthalene isomer
103	236	unsat. hydrocarbon
104	238	$C_{16}H_{32}$ isomer
105	239	C_5-alkyl benzene isomer
106	240	$C_{16}H_{34}$ isomer
107	240	$C_{16}H_{32}$ isomer
108	240	diethyl phthalate
108A	240	C_3-alkyl naphthalene isomer
110	240	n-hexadecane
111	240	sat. hydrocarbon
111A	240	unsat. hydrocarbon
112	240	sat. hydrocarbon
113	240	$C_{18}H_{38}$ isomer
114	240	$C_{17}H_{34}$ isomer
114A	240	$C_{16}H_{32}$ isomer
115	240	n-heptadecane
116	240	$C_{19}H_{40}$ isomer
116A	240	$C_{17}H_{34}$ isomer
117	240	methoxy-di-ter-butylphenol isomer
118	240	hydrocarbon
119	240	$C_{19}H_{38}$ isomer
120	240	$C_{17}H_{34}$ isomer
121	240	n-octadecane

(continued)

Table B4 (cont'd)

Chromato-graphic Peak No.	Elution Temp. (°C)	Compound	Chromato-graphic Peak No.	Elution Temp. (°C)	Compound
122	240	unknown	123A	240	unsat. hydrocarbon
123	240	sat. hydrocarbon	124	240	sat. hydrocarbon

[a] See Table 8 for sampling protocol.

Table B5. VOLATILE ORGANIC VAPORS IDENTIFIED IN AIR FROM HOUSEHOLD BASEMENT (L6), NIAGARA, NY[a]

Chromato-graphic Peak No.	Elution Temp. (°C)	Compound
1	57	CO_2
1A	61	acetaldehyde
1B	62	C_4H_8 isomer
2	63	n-butane
2A	66	ethanol (tent.)
2B	68	C_5H_{12} isomer
3	69	acetone
3A	70	C_3H_8O isomer (tent.)
3B	70	furan (traces)
4	71	n-pentane
4A	72	C_5H_8 isomer
4B	73	C_5H_{10} isomer
4C	73	methylene chloride
4D	78	C_4H_6O isomer (tent.)
4E	79	vinyl acetate
5	80	2-methylpentane
5A	81	methyl ethyl ketone
6	82	3-methylpentane
7	83	C_6H_{12} isomer
7A	83	hexafluorobenzene (es)
7B	84	methylfuran isomer
8	85	n-hexane
9	86	chloroform + C_6H_{12} isomer
9A	87	perfluorotoluene (es)
10	88	acetic acid + C_6H_{12} isomer
11	90	methylcyclopentane
12	93	benzene
13	95	cyclohexane
14	97	C_7H_{16} isomer
15	98	C_7H_{16} isomer
15A	100	C_7H_{14} isomer
16	100	trichloroethylene
17	103	n-heptane
18	108	methylcyclohexane
18A	110	C_8H_{16} isomer
18B	111	C_8H_{18} isomer
18C	112	C_8H_{16} isomer
19	115	toluene
20	121	C_8H_{18} isomer
21	122	C_8H_{16} isomer
22	123	C_8H_{16} isomer
23	124	n-octane
23A	125	C_8H_{16} isomer
24	126	tetrachloroethylene
25	129	C_9H_{20} isomer
26	130	C_9H_{20} isomer
27	131	chlorobenzene
27A	132	chlorobenzotrifluoride isomer (traces)
28	134	ethylbenzene
29	135	C_9H_{18} isomer
30	136	xylene isomer
30A	136	C_9H_{20} isomer
31	138	C_9H_{20} isomer
32	139	styrene
32A	139	C_9H_{18} isomer
33	140	o-xylene
33A	141	C_9H_{18} isomer
34	143	n-nonane
35	145	C_9H_{18} isomer
35A	147	$C_{10}H_{22}$ isomer
36	148	C_9H_{16} isomer
36A	148	$C_{10}H_{22}$ isomer
36B	149	C_9H_{18} isomer
36C	150	$C_{10}H_{16}$ isomer (tent.)
37	152	chlorotoluene isomer
38	160	chlorotoluene + C_3-alkyl benzene isomers
38A	160	$C_{10}H_{20}$ isomer
38B	160	C_3-alkyl benzene isomer
39	162	C_3-alkyl benzene + $C_{10}H_{20}$ isomers
40	164	n-decane
41	165	dichlorobenzene isomer
42	166	C_3-alkyl benzene isomer
42A	166	C_4-alkyl benzene isomer
43	167	$C_{11}H_{24}$ isomer
44	168	dichlorobenzene isomer
44A	168	$C_{10}H_{16}$ isomer
45	169	bromotoluene isomer
46	170	C_4-alkyl benzene + $C_{11}H_{22}$ isomers
47	171	C_4-alkyl benzene isomer
47A	171	C_4-alkyl benzene isomer
48	172	chlorobenzodichlorofluoride isomer (traces)
49	172	$C_{11}H_{24}$ isomer
50	173	$C_{11}H_{22}$ isomer
51	174	$C_{11}H_{24}$ + C_4-alkyl benzene isomers
51A	175	$C_{11}H_{24}$ + $C_{10}H_{18}$ isomers
52	176	C_4-alkyl benzene isomer

(continued)

Table B5 (cont'd)

Chromato-graphic Peak No.	Elution Temp. (°C)	Compound
53	178	$C_{11}H_{22}$ isomer
54	180	n-undecane
54A	181	chlorobenzaldehyde isomer
55	183	dichlorotoluene isomer
56	185	dichlorotoluene isomer
57	188	dichlorotoluene isomer
57A	188	C_4-alkyl benzene isomer (tent.)
58	189	C_5-alkyl benzene isomer
59	190	C_5-alkyl benzene isomer
60	192	trichlorobenzene isomer
60A	193	$C_{12}H_{24}$ isomer
61	193	naphthalene
62	195	n-dodecane
62A	196	C_5-alkyl benzene + $C_{12}H_{24}$ isomers
63	197	trichlorobenzene + bromochlorotoluene isomers
64	198	1,3-hexachlorobutadiene
65	199	$C_{10}H_{14}O$ isomer
66	201	unsat. hydrocarbon isomer (tent.)
67	202	$C_{13}H_{26}$ + dichlorobenzaldehyde (traces) isomers
68	202	$C_{13}H_{26}$ isomer
69	203	$C_{13}H_{28}$ isomer
70	204	$C_{13}H_{26}$ isomer (tent.)
71	205	trichlorotoluene isomer
72	206	$C_{13}H_{28}$ isomer
73	208	$C_{13}H_{26}$ isomer
73A		n-tridecane
74	210	trichlorotoluene isomer
75	212	trichlorotoluene isomer
76	214	sat. hydrocarbon isomer (tent.)
77	215	tetrachlorobenzene isomer
78	216	trichlorotoluene isomer
79	217	$C_{14}H_{30}$ isomer
79A	217	$C_{13}H_{26}$ isomer
80	218	$C_{14}H_{30}$ isomer
81	218	sat. hydrocarbon
82	219	sat. hydrocarbon
83	221	$C_{14}H_{30}$ isomer + biphenyl (traces)
84	222	tetrachlorobenzene isomer
84A	222	chloronaphthalene isomer
85	223	n-tetradecane
86	225	C_2-alkyl naphthalene + $C_{14}H_{28}$ isomers
87	227	unknown
88	228	$C_{14}H_{28}$ + C_2-alkyl naphthalene isomers
89	230	$C_{15}H_{24}$ isomer
90	231	$C_{14}H_{20}$ isomer
91	232	$C_{16}H_{34}$ isomer
92	235	tetrachlorotoluene isomer
93	237	n-pentadecane
		$C_{14}H_{14}$ isomer (tent.)
94	240	pentachlorobenzene
97	240	n-hexadecane

[a] See Table 8 for sampling protocol.

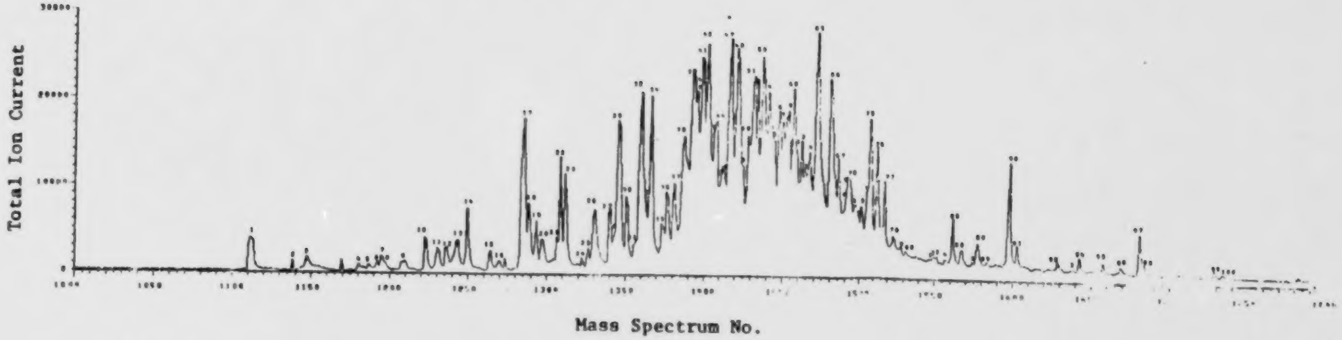


Figure B2. GC/MS/COMP profile of volatile organic vapors in ambient air from L2 (see Table 8 for protocol).

Table B6. VOLATILE ORGANIC VAPORS IDENTIFIED IN AIR FROM HOUSEHOLD BASEMENT (L2), NIAGARA, NY[a]

Chromatographic Peak No.	Elution Temp. (°C)	Compound
1	57	CO_2
1A	61	C_3H_6 isomer (tent.)
1B	62	acetaldehyde
1C	62	C_4H_8 isomer
1D	63	C_4H_{10} isomer
1E	64	C_4H_8 isomer
2	68	ethanol (tent.)
3	70	acetone
3A	72	isopropanol (tent.)
3B	79	butenal isomer
4	81	2-methylpentane
4A	81	C_5H_{10} isomer
4B	82	butanal
5	83	methyl ethyl ketone
5A	84	C_6H_{12} isomer
6	85	hexafluorobenzene (e[illegible])
7	85	n-hexane
8	86	chloroform + ethyl acetate
8A	87	C_6H_{12} isomer
8B	88	C_6H_{12} isomer
9	90	perfluorotoluene (e[illegible])
9A	90	methylcyclopentane
9B	92	1,1,1-trichloroethane (traces)
9C	94	[illegible] + $C_5H_{10}O$ aldehyde [illegible]rs
10	95	[illegible]
10A	96	carbon tetrachloride (traces)
10B	96	cyclohexane
11	97	2-methylhexane
11A	99	$C_4H_{10}O$ isomer (traces)
12	99	3-methylhexane
12A	100	n-pentanal
12B	101	C_7H_{14} isomer
12C	101	acetic acid
13	102	trichloroethylene + 1,2-bis-(trifluoromethyl)benzene
14	104	n-heptane
14A	104	C_7H_{14} isomer
15	109	4-methyl-2-pentanone + methylcyclohexane
16	111	C_8H_{18} isomer
16A	112	C_8H_{16} isomer
16B	114	C_8H_{16} isomer
16C	114	C_7H_{12} isomer
17	116	toluene
18	117	C_8H_{18} isomer
19	118	C_8H_{18} isomer
19A	119	n-hexanal
20	120	C_8H_{16} isomer
20A	121	C_8H_{16} isomer
21	123	n-butyl acetate
22	124	n-octane
23	125	tetrachloroethylene
23A	126	furfural (tent.)
23B	128	C_9H_{20} isomer
24	128	C_9H_{20} isomer
25	130	C_9H_{20} isomer
25A	130	C_8H_{16} isomer
26	131	chlorobenzene + ethylcyclohexane
26A	131	chlorobenzotrifluoride isomer
26B	132	C_9H_{18} isomer
26C	133	C_9H_{18} isomer
27	134	ethylbenzene
27A	135	C_9H_{18} isomer
28	135	C_9H_{20} isomer
29	136	xylene isomer
29A	136	C_9H_{20} isomer
30	138	C_9H_{20} isomer
31	139	styrene
31A	140	C_9H_{18} isomer
31B	140	o-xylene
32	141	chlorobenzotrifluoride isomer
33	142	C_9H_{18} isomer
34	143	n-nonane
34A	144	C_9H_{18} isomer
35	145	C_9H_{18} isomer
36	146	isopropylbenzene
36A	147	$C_{10}H_{22}$ isomer
36B	148	C_9H_{16} + C_9H_{18} isomers
37	148	$C_{10}H_{22}$ isomer
37A	149	propylcyclohexane
38	150	$C_{10}H_{22}$ isomer
38A	151	$C_{10}H_{16}$ isomer
39	152	chlorotoluene isomer
40	153	n-propylbenzene
41	155	ethyltoluene isomer
42	156	1,3,5-trimethylbenzene + $C_{10}H_{22}$ isomer
42A	156	$C_{10}H_{20}$ isomer
43	157	$C_{10}H_{22}$ isomer
44	158	o-ethyltoluene

(continued)

Table B6 (cont'd)

Chromato-graphic Peak No.	Elution Temp. (°C)	Compound
45	159	$C_{10}H_{20}$ + $C_{10}H_{18}$ isomers
45A	159	$C_{10}H_{16}$ isomer
46	159	$C_{10}H_{20}$ isomer
47	161	1,2,4-trimethylbenzene
47A	161	$C_{10}H_{20}$ isomer
48	162	*n*-decane
48A	163	dichlorobenzene isomer
48B	163	$C_{10}H_{20}$ isomer
49	163	C_4-alkyl benzene isomer
50	164	$C_{11}H_{22}$ isomer
50A	165	C_4-alkyl benzene isomer
51	165	1,2,3-trimethylbenzene
51A	166	C_4-alkyl benzene isomer
52	166	$C_{11}H_{24}$ isomer
52A	167	dichlorobenzene isomer
53	167	$C_{10}H_{16}$ isomer
53A	168	$C_{11}H_{22}$ isomer
54	169	*n*-butylcyclohexane
54A	169	$C_{11}H_{24}$ isomer
55	170	C_4-alkyl benzene + $C_{11}H_{22}$ isomers
56	171	C_4-alkyl benzene isomer
57	172	C_4-alkyl benzene isomer
57A	172	chlorobenzochlorodifluoride isomer
58	172	$C_{11}H_{24}$ isomer
59	173	$C_{11}H_{24}$ isomer
59A	173	C_4-alkyl benzene isomer
60	174	decahydronaphthalene (tent.)
61	175	C_4-alkyl benzene isomer
61A	176	$C_{11}H_{22}$ isomer
62	176	C_4-alkyl benzene isomer
62A	177	C_4H_7-benzene isomer
63	177	$C_{11}H_{22}$ + $C_{12}H_{22}$ isomers
64	178	$C_{11}H_{22}$ isomer
64A	178	C_5-alkyl benzene isomer
65	179	*n*-undecane
65A	180	$C_{11}H_{22}$ isomer
65B	182	C_4-alkyl benzene isomer
66	182	dichlorotoluene isomer
66A	183	$C_{12}H_{26}$ isomer
66B	183	$C_{11}H_{20}$ isomer
67	184	$C_{12}H_{26}$ isomer
67A	184	C_5-alkyl benzene isomer
68	185	C_5-alkyl benzene + $C_{12}H_{24}$ isomers
69	186	C_5-alkyl cyclohexane isomer
70	186	dichlorotoluene isomer
70A	187	C_4H_7-benzene isomer
71	187	C_4-alkyl benzene isomer
71A	188	$C_{12}H_{26}$ isomer
71B	188	C_5-alkyl benzene isomer
72	188	$C_{12}H_{26}$ isomer
72A	189	$C_{12}H_{24}$ isomer
73	189	$C_{12}H_{26}$ + C_5-alkyl benzene isomers
73A	190	C_4-alkyl benzene isomer
74	190	$C_{11}H_{18}$ isomer (tent.)
75	191	trichlorobenzene isomer
75A	192	naphthalene
76	193	$C_{10}H_{16}$ isomer
77	194	*n*-dodecane
77A	195	C_5-alkyl benzene isomer
78	196	trichlorobenzene isomer
79	198	1,3-hexachlorobutadiene
80	199	sat. hydrocarbon
80A	201	$C_{12}H_{24}$ isomer
80B	202	$C_{13}H_{28}$ isomer
80C	203	C_6-alkyl benzene isomer
81	204	sat. hydrocarbon
82	205	trichlorotoluene + $C_{13}H_{28}$ isomers
83	206	$C_{13}H_{28}$ isomer
83A	206	C_6-alkyl benzene isomer
84	208	$C_{13}H_{26}$ isomer
84A	209	*n*-tridecane + β-methylnaphthalene
85	209	trichlorotoluene isomer
86	211	trichlorotoluene isomer
86A	211	α-methylnaphthalene
87	213	$C_{14}H_{30}$ isomer (tent.)
88	214	tetrachlorobenzene isomer
88A	215	trichlorotoluene isomer
89	216	$C_{14}H_{30}$ isomer
89A	215	trichlorotoluene isomer
90	221	tetrachlorobenzene isomer
91	223	*n*-tetradecane
91A	225	C_2-alkyl naphthalene (traces)
91B	227	C_2-alkyl naphthalene isomer
91C	230	$C_{14}H_{28}$ isomer
92	232	$C_{16}H_{34}$ isomer
93	235	tetrachlorotoluene isomer

(continued)

Table B6 (cont'd)

Chromato-graphic Peak No.	Elution Temp. (°C)	Compound	Chromato-graphic Peak No.	Elution Temp. (°C)	Compound
94	236	n-pentadecane	99	240	n-heptadecane
95	240	pentachlorobenzene	100	240	sat. hydrocarbon
98	240	n-hexadecane			

[a] See Table 8 for sampling protocol.

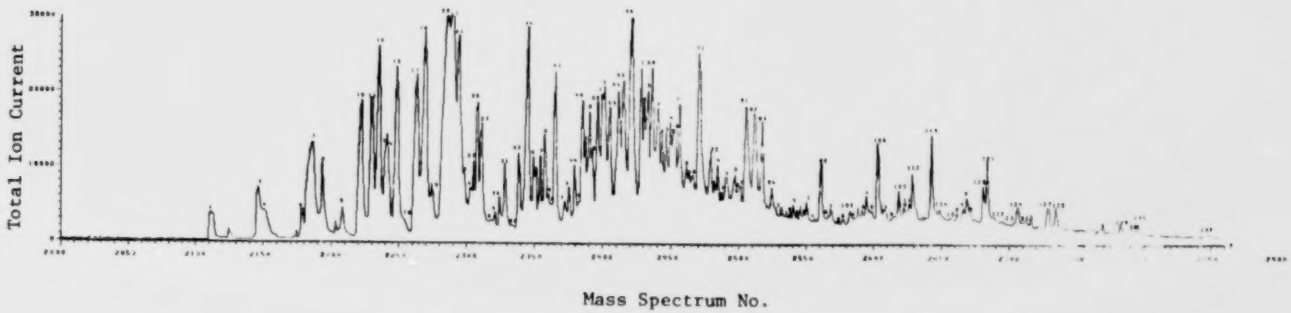


Figure B3. GC/MS/COMP profile of volatile organic vapors in ambient air from L3 (see Table 8 for protocol).

Table B7. VOLATILE ORGANIC VAPORS IDENTIFIED IN AIR FROM HOUSEHOLD BASEMENT (L3), NIAGARA, NY[a]

Chromatographic Peak No.	Elution Temp. (°C)	Compound
1	57	CO_2
1A	61	C_4H_8 isomer
2	62	acetaldehyde
2A	63	C_4H_8 isomer
2B	64	C_4H_8 isomer
2C	68	ethanol (tent.)
2D	68	propenal
3	69	acetone
3A	70	furan (traces)
4	71	n-pentane + propanol (tent.)
4A	72	C_5H_8 isomer
4B	74	methylene chloride
4C	74	$C_4H_{10}O$ isomer
4D	75	C_5H_6 isomer
5	79	butenal isomer
6	80	2-methylpentane
7	82	methyl ethyl ketone
7A	84	hexafluorobenzene (e[illegible])
8	85	n-hexane
8A	86	ethyl acetate
8B	87	C_6H_{12} isomer
8C	90	perfluorotoluene (e[illegible])
9	90	methylcyclopentane
9A	92	1,1,1-trichloroethane (traces)
10	95	benzene
10A	96	cyclohexane
11	98	2-methylhexane
11A	99	2,3-dimethylpentane
12	100	3-methylhexane
12A	101	acetic acid
13	101	C_7H_{14} isomer
13A	102	trichloroethylene (traces)
14	102	C_7H_{14} isomer
14A	103	C_7H_{12} isomer
15	104	n-heptane
16	106	C_7H_{14} isomer
16A	106	C_7H_{12} isomer (traces)
17	109	methylcyclohexane + 4-methyl-2-pentanone
17A	110	C_8H_{16} isomer
18	111	C_8H_{18} isomer
19	113	C_8H_{16} isomer
19A	114	C_7H_{12} isomer
20	116	toluene
21	118	C_8H_{18} isomer
22	119	C_8H_{18} isomer
23	120	C_8H_{16} isomer
23A	121	1,2-dibromoethane (traces)
24	122	C_8H_{16} isomer
25	123	n-butyl acetate
26	124	n-octane
27	125	tetrachloroethylene
27A	126	C_8H_{16} isomer
28	127	C_9H_{20} isomer
29	128	C_9H_{20} isomer
30	129	C_9H_{20} isomer
30A	130	C_8H_{16} isomer
31	131	chlorobenzene + ethylcyclohexane
31A	131	C_9H_{20} isomer
31B	132	C_9H_{18} isomer
32	133	C_9H_{18} isomer
33	134	ethylbenzene
33A	135	C_9H_{18} isomer
34	136	xylene isomer
34A	136	C_9H_{20} isomer + phenylacetylene
34B	137	$C_7H_{14}O$ isomer (tent.)
35	138	C_9H_{20} isomer
36	138	di-n-butyl ether
37	139	styrene
37A	140	C_9H_{18} isomer
38	140	o-xylene
39	141	C_9H_{18} isomer
40	142	C_9H_{18} isomer
41	143	n-nonane
41A	144	$C_{10}H_{20}$ isomer
42	145	C_9H_{18} isomer
42A	146	isopropylbenzene
43	147	$C_{10}H_{22}$ isomer
44	148	C_9H_{16} + $C_{10}H_{22}$ isomers
45	149	$C_{10}H_{22}$ isomer
46	150	C_3-alkyl cyclohexane isomer
46A	150	$C_{10}H_{22}$ isomer
47	151	benzaldehyde + $C_{10}H_{16}$ isomer
47A	151	$C_{10}H_{22}$ isomer
48	152	chlorotoluene isomer
49	152	n-propylbenzene
50	154	ethyltoluene + $C_{10}H_{22}$ isomers
51	155	$C_{10}H_{22}$ isomer + 1,3,5-trimethylbenzene
52	155	$C_{10}H_{22}$ isomer
52A	156	$C_{10}H_{20}$ isomer

(continued)

Table B7 (cont'd)

Chromato- graphic Peak No.	Elution Temp. (°C)	Compound
52A	156	C_4-alkyl benzene isomer
53	157	$C_{10}H_{22}$ isomer
53A	157	*o*-ethyltoluene
53B	158	$C_{10}H_{18}$ isomer
53C	158	$C_{10}H_{20}$ isomer
54	159	$C_{10}H_{16}$ isomer
54A	159	C_3H_5-benzene isomer
55	160	$C_{10}H_{20}$ isomer + 1,2,4-trimethylbenzene
55A	161	$C_{11}H_{22}$ isomer
55B	161	dichlorobenzene isomer (traces)
56	162	*n*-decane
56A	163	C_4-alkyl benzene isomer
56B	163	$C_{10}H_{20}$ isomer
57	164	$C_{10}H_{16}$ + C_4-alkyl benzene isomers
57A	165	1,2,3-trimethylbenzene
58	165	C_4 alkyl benzene isomer
59	166	$C_{11}H_{24}$ isomer
60	167	$C_{10}H_{16}$ isomer
60A	167	$C_{11}H_{22}$ isomer + indan (traces)
61	168	C_4-alkyl cyclohexane isomer + indene
61A	169	C_4-alkyl benzene isomer
61B	169	$C_{11}H_{22}$ isomer
62	169	C_4-alkyl benzene isomer
63	170	C_4-alkyl benzene isomer
63A	171	$C_{11}H_{22}$ isomer
64	171	$C_{11}H_{24}$ isomer
65	172	$C_{11}H_{24}$ isomer
65A	172	C_4-alkyl benzene isomer
66	173	$C_{11}H_{24}$ isomer
66A	173	decalin or $C_{10}H_{18}$ isomer
67	174	$C_{11}H_{24}$ isomer
67A	174	C_4-alkyl benzene isomer
67B	175	$C_{11}H_{22}$ isomer
68	175	C_4-alkyl benzene + C_4H_7-benzene isomers
69	176	$C_{11}H_{22}$ isomer
70	177	$C_{11}H_{22}$ isomer
71	178	*n*-undecane
71A	179	$C_{11}H_{22}$ isomer
71B	181	C_4-alkyl benzene isomer
71C	181	dichlorotoluene isomer
72	181	$C_{12}H_{26}$ isomer
72A	182	C_4-alkyl benzene isomer
73	182	$C_{12}H_{26}$ isomer
74	183	$C_{11}H_{20}$ isomer
74A	183	C_5-alkyl benzene isomer
75	184	C_5-alkyl benzene + $C_{12}H_{24}$ isomers
75A	184	C_5H_9-benzene isomer (tent.)
76	185	C_5-alkyl benzene isomer
77	185	C_5-alkyl cyclohexane isomer
77A	186	$C_{11}H_{20}$ isomer
77B	186	C_5-alkyl benzene isomer
77C	186	C_4H_7-benzene isomer
77D	187	C_4-alkyl benzene isomer
78	187	$C_{12}H_{26}$ isomer
79	188	C_5-alkyl benzene isomer
80	189	C_5-alkyl benzene + $C_{12}H_{26}$ isomers
80A	189	C_4-alkyl benzene isomer
81	190	(2-butoxyethoxy)ethanol isomer
81A	190	trichlorobenzene isomer (traces)
82	191	$C_{12}H_{24}$ isomer (tent.)
83	192	naphthalene
83A	192	$C_{10}H_{16}$ isomer
83B	193	C_5-alkyl benzene isomer
84	194	*n*-dodecane
84A	195	C_5-alkyl benzene isomer
85	196	benzothiazole (tent.) + $C_{13}H_{28}$ isomer
86	199	C_6-alkyl benzene + $C_{12}H_{22}$ isomers (tent.)
87	201	$C_{13}H_{26}$ isomer
88	201	C_6-alkyl cyclohexane isomer
89	202	C_6-alkyl benzene isomer
90	203	$C_{13}H_{26}$ isomer
91	204	sat. hydrocarbon
92	205	$C_{13}H_{28}$ isomer
93	205	$C_{14}H_{30}$ isomer
93A	207	$C_{13}H_{24}$ isomer (tent.)
94	207	$C_{13}H_{26}$ isomer
95	209	β-methylnaphthalene + *n*-tridecane
96	211	trichlorotoluene isomer (traces)
97	212	α-methylnaphthalene
98	213	unsat. hydrocarbon

(continued)

Table B7 (cont'd)

Chromatographic Peak No.	Elution Temp. (°C)	Compound
98A	214	tetrachlorobenzene isomer
99	215	unknown
99A	215	$C_{14}H_{28}$ isomer
100	217	C_7-alkyl cyclohexane isomer
101	218	$C_{14}H_{30}$ isomer
102	218	sat. hydrocarbon
103	219	$C_{14}H_{30}$ isomer
104	220	biphenyl
104A	220	$C_{15}H_{32}$ isomer
104B	221	tetrachlorobenzene isomer
105	222	$C_{14}H_{28}$ isomer
106	223	n-tetradecane
107	225	dimethylnaphthalene isomer
107A	225	$C_{14}H_{28}$ isomer
108	227	C_2-alkyl naphthalene isomer
109	228	$C_{15}H_{24}$ isomer
110	230	$C_{15}H_{32}$ + C_2-alkyl naphthalene isomers
110A	231	$C_{14}H_{28}$ isomer
111	231	biphenylene
112	232	$C_{16}H_{34}$ isomer
112A	234	$C_{15}H_{30}$ isomer
112B	235	$C_{16}H_{32}$ isomer
113	237	n-pentadecane
113A	238	$C_{15}H_{30}$ isomer
114	239	C_3-alkyl naphthalene + $C_{15}H_{24}$ isomers
114A	240	$C_{15}H_{30}$ isomer
115	240	C_3-alkyl naphthalene + pentachlorobenzene (traces) isomers
116	240	sat. hydrocarbon
116A	240	$C_{16}H_{32}$ isomer
117	240	$C_{15}H_{30}$ isomer
119	240	$C_{16}H_{32}$ isomer
121	240	n-hexadecane
122	240	$C_{16}H_{32}$ isomer
123	240	unsat. hydrocarbon
124	240	$C_{18}H_{38}$ isomer
125	240	unsat. hydrocarbon
126	240	$C_{16}H_{32}$ isomer
127	240	n-heptadecane
128	240	$C_{19}H_{40}$ isomer
128A	240	$C_{17}H_{34}$ isomer
129	240	n-octadecane
131	240	sat. hydrocarbon
132	240	sat. hydrocarbon

[a] See Table 8 for sampling protocol.

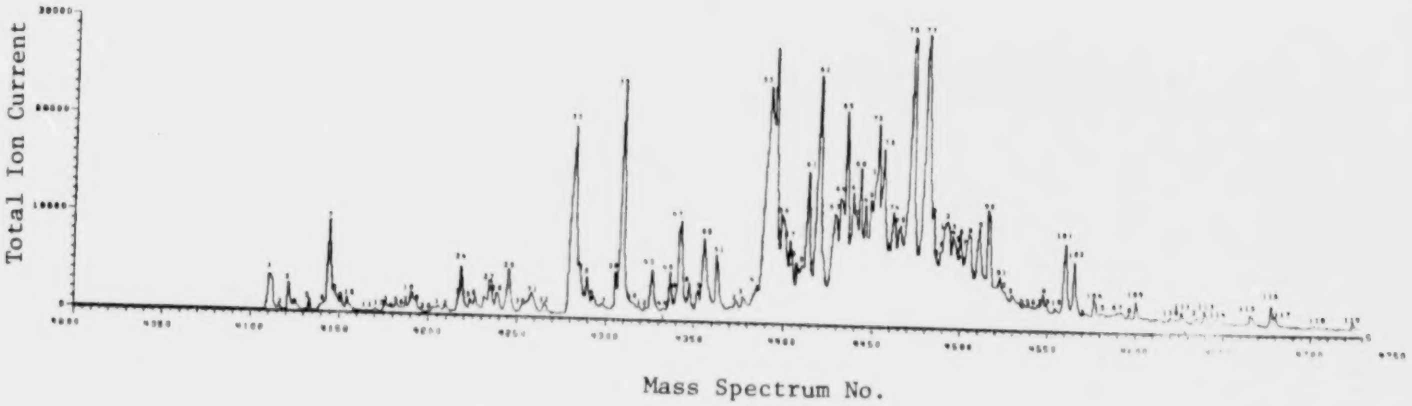


Figure B4. GC/MS/COMP profile of volatile organic vapors in ambient air from L1 (see Table 8 for protocol).

Table B8. VOLATILE ORGANIC VAPORS IDENTIFIED IN AIR FROM HOUSEHOLD BASEMENT (L1), NIAGARA, NY[a]

Chromato-graphic Peak No.	Elution Temp. (°C)	Compound
1	57	CO_2
3	61	isobutane
3A	61	acetaldehyde
3B	62	C_4H_8 isomer
4	62	n-butane
4A	63	C_4H_8 isomer
5	64	methanol + methyl formate (tent.)
6	67	ethanol
8	70	acetone
8A	71	C_5H_{12} isomer
9	71	C_5H_8 isomer
10	73	dichloromethane
10A	73	C_5H_{10} isomer
10B	74	$C_4H_{10}O$ isomer
10C	75	C_5H_6 isomer (tent.)
11	76	isobutyraldehyde
12	78	butenal isomer
13	79	2-methylpentane
14	80	n-butanal
14A	81	methyl vinyl ketone
15	81	methyl ethyl ketone + 3-methylpentane
16	82	C_6H_{12} isomer
17	83	hexafluorobenzene (eI)
17A	83	methylfuran isomer
18	84	n-hexane
18A	84	ethyl acetate
19	85	chloroform
19A	85	C_6H_{12} isomer
19B	86	C_6H_{10} isomer
19C	86	C_6H_{12} isomer
19D	87	C_6H_{12} isomer
20	88	perfluorotoluene (eI)
21	89	methylcyclopentane
21A	89	hexadiyne isomer
21B	90	C_6H_{10} isomer
22	90	1,1,1-trichloroethane
22A	92	methyl isopropyl ketone
22B	92	C_6H_{10} isomer
23	93	isopropyl acetate
24	93	benzene
24A	94	carbon tetrachloride (traces)
25	95	cyclohexane
26	96	C_7H_{16} isomer
26A	97	2-pentanone
26B	98	3-methylhexane
26C	98	n-pentanal
27	99	1,2-dichloropropane
27A	99	C_7H_{14} isomer
27B	100	C_7H_{14} isomer
28	100	trichloroethylene
28A	101	C_7H_{12} isomer
28B	102	2,5-dimethylfuran
29	102	n-heptane
29A	103	C_7H_{14} isomer
30	105	acetic acid + unknown
31	107	C_8H_{18} isomer
31A	107	methylcyclohexane
31B	109	C_8H_{18} isomer
32	109	C_7H_{12} isomer (tent.)
32A	111	C_8H_{16} isomer
32B	113	C_7H_{12} isomer
33	115	toluene
34	116	C_8H_{18} isomer
34A	117	$C_6H_{12}O$ isomer
35	118	C_8H_{18} isomer
36	119	n-hexanal
36A	119	C_8H_{16} isomer
37	121	C_8H_{14} + C_8H_{16} isomers
37A	121	C_8H_{16} isomer
37B	122	C_8H_{14} isomer
37C	122	n-butyl acetate
38	123	n-octane
39	124	tetrachloroethylene
40	126	C_8H_{12} isomer
41	128	C_9H_{20} isomer
41A	128	C_8H_{14} isomer
42	129	C_9H_{20} isomer
43	130	chlorobenzene
43A	131	chlorobenzotrifluoride isomer (traces)
44	132	C_9H_{18} isomer
45	133	ethylbenzene
46	134	C_9H_{18} isomer
47	135	xylene isomer
47A	136	C_9H_{20} isomer
47B	137	$C_7H_{14}O$ isomer
48	137	C_9H_{20} isomer
49	138	styrene
49A	139	n-heptanal
49B	139	C_9H_{16} isomer

(continued)

Table B8 (cont'd)

Chromato-graphic Peak No.	Elution Temp. (°C)	Compound
50	140	*o*-xylene
50A	140	$C_7H_{16}O_2$ isomer (tent)
50B	141	C_9H_{18} isomer
51	142	*n*-nonane
51A	142	C_9H_{20} isomer
52	146	isopropylbenzene + $C_{10}H_{22}$ isomer
53	147	C_9H_{16} + C_9H_{18} isomers
53A	147	$C_{10}H_{22}$ isomer
53B	149	C_3-alkyl cyclohexane isomer
54	150	$C_{10}H_{22}$ isomer
55	152	chlorotoluene isomer
55A	153	ethyltoluene isomer
55B	154	$C_{10}H_{22}$ isomer
56	154	1,3,5-trimethylbenzene
56A	154	$C_{10}H_{22}$ isomer
56B	155	$C_{10}H_{20}$ isomer
57	156	$C_{10}H_{22}$ isomer
58	156	*o*-ethyltoluene
59	157	$C_{10}H_{20}$ isomer
59A	158	$C_{10}H_{16}$ isomer
60	158	$C_{11}H_{22}$ isomer
60A	150	C_3H_5-benzene isomer
61	159	1,2,4-trimethylbenzene
61A	160	$C_{10}H_{20}$ isomer
61B	160	$C_{11}H_{22}$ isomer
62	161	*n*-decane
62A	161	dichlorobenzene isomer
62B	162	$C_{10}H_{20}$ isomer
62C	162	C_4-alkyl benzene isomer
62D	163	$C_{11}H_{22}$ isomer
62E	163	C_4-alkyl benzene isomer
62F	164	$C_{11}H_{24}$ isomer
63	164	C_4-alkyl benzene isomer + 1,2,3-trimethylbenzene
64	165	$C_{11}H_{24}$ isomer
65	166	$C_{10}H_{16}$ isomer
65A	167	$C_{11}H_{22}$ isomer
66	168	$C_{12}H_{26}$ + C_4-alkyl cyclohexane isomers
67	168	$C_{11}H_{22}$ isomer
67A	169	C_4-alkyl benzene isomer
68	169	C_4-alkyl benzene isomer
68A	170	$C_{11}H_{26}$ isomer
69	170	C_4-alkyl benzene isomer
69A	170	$C_{11}H_{22}$ isomer
70	171	$C_{11}H_{24}$ isomer
71	172	$C_{11}H_{24}$ isomer
71A	172	C_4-alkyl benzene isomer
72	172	$C_{11}H_{24}$ isomer
72A	173	$C_{10}H_{18}$ isomer
73	173	$C_{11}H_{24}$ isomer
73A	174	C_4-alkyl benzene isomer
73B	174	$C_{11}H_{22}$ isomer
73C	175	C_4-alkyl benzene + C_4H_7-benzene isomers
74	175	$C_{12}H_{26}$ isomer
75	177	$C_{11}H_{22}$ isomer
75A	177	$C_{12}H_{24}$ isomer
75B	178	C_5-alkyl benzene isomer
76	179	*n*-undecane
76A	180	$C_{11}H_{22}$ isomer
76B	180	C_5-alkyl benzene isomer
76C	181	$C_{12}H_{26}$ isomer
77	182	dichlorotoluene isomer
77A	183	$C_{11}H_{20}$ isomer
78	183	$C_{12}H_{26}$ isomer
79	183	C_5-alkyl benzene isomer
79A	184	$C_{12}H_{18}O$ ketone isomer (tent.)
80	184	benzyl acetate
80A	185	$C_{12}H_{24}$ isomer
81	185	C_5-alkyl cyclohexane isomer
82	186	dichlorotoluene isomer
83	186	C_4-alkyl benzene + C_5-alkyl benzene isomers
84	187	$C_{12}H_{26}$ isomer
84A	187	C_5-alkyl benzene isomer
85	187	$C_{12}H_{26}$ isomer
86	188	$C_{12}H_{26}$ isomer
86A	188	C_5-alkyl benzene isomer
86B	189	$C_{12}H_{24}$ isomer
87	189	C_5-alkyl benzene isomer
88	190	trichlorobenzene isomer
88A	191	methyl salicylate
88B	191	naphthalene
89	192	$C_{10}H_{16}$ isomer
89A	193	$C_{12}H_{24}$ isomer
89B	193	C_5-alkyl benzene isomer
90	193	*n*-dodecane
90A	195	trichlorobenzene + bromochlorotoluene (traces) isomers

(continued)

Table B8 (cont'd)

Chromatographic Peak No.	Elution Temp. (°C)	Compound
91	196	$C_{13}H_{28}$ isomer
91A	196	C_6-alkyl benzene isomer
92	197	$C_{13}H_{28}$ isomer
93	198	$C_{13}H_{26}$ isomer
94	200	C_6-alkyl cyclohexane isomer
94A	201	$C_{13}H_{26}$ isomer
95	201	$C_{13}H_{28}$ isomer
96	202	sat. hydrocarbon
98	203	$C_{13}H_{28}$ isomer
99	205	$C_{14}H_{30}$ isomer
100	206	$C_{13}H_{26}$ isomer
100A	207	$C_{11}H_{16}O$ isomer (tent.)
100B	208	_n_-tridecane + β-methylnaphthalene
101	208	trichlorotoluene isomer
102	210	trichlorotoluene isomer
102A	211	α-methylnaphthalene
103	212	sat. hydrocarbon (tent.)
104	214	trichlorotoluene isomer
105	215	$C_{14}H_{30}$ isomer
106	218	alkyl butyrate
106A	219	biphenyl
107	219	$C_{14}H_{30}$ isomer
107A	220	tetrachlorobenzene isomer (traces)
108	221	chloronaphthalene isomer (traces)
108A	222	diphenyl ether (tent.)
109	222	_n_-tetradecane
109A	223	$C_{14}H_{28}$ isomer
109B	224	C_2-alkyl naphthalene isomer
109C	226	C_2-alkyl naphthalene isomer
110	229	$C_{14}H_{28}$ isomer
111	231	sat. hydrocarbon
112	234	tetrachlorotoluene isomer
113	235	_n_-pentadecane
114	238	tetrachlorotoluene isomer
117	240	_n_-hexadecane
118	240	sat. hydrocarbon
119	240	_n_-heptadecane

[a] See Table 8 for sampling protocol.

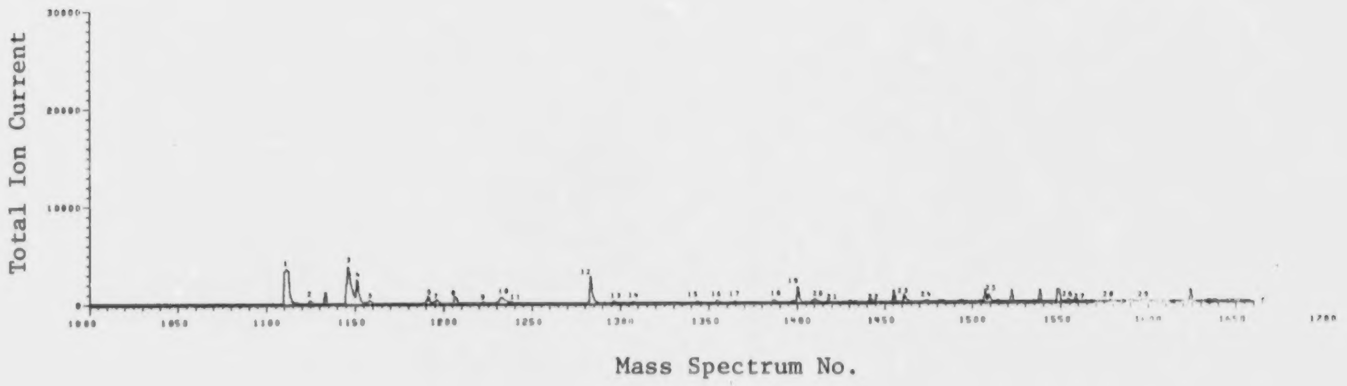


Figure B5. GC/MS/COMP profile of volatile organic vapors in ambient air from L12A (See Table 8 for protocol).

Table B9. VOLATILE ORGANIC VAPORS IDENTIFIED IN AIR FROM HOUSEHOLD BASEMENT (L12A), NIAGARA, NY[a]

Chromatographic Peak No.	Elution Temp. (°C)	Compound	Chromatographic Peak No.	Elution Temp. (°C)	Compound
1	57	CO_2	16A	140	o-xylene
2	62	acetaldehyde	17	143	n-nonane
2A	68	isopentane	18	150	benzaldehyde
2B	68	propenal (tent)	18A	153	C_3-alkyl benzene isomer
3	69	acetone	18B	154	phenol
4	71	n-pentane	19	155	$C_{10}H_{22}$ isomer
5	73	methylene chloride	20	158	n-octanal
5A	81	butanal (tent)	20A	159	C_3-alkyl benzene isomer
5B	83	methyl ethyl ketone	21	161	$C_{10}H_{22}$ isomer
6	84	hexafluorobenzene (es)	21A	168	$C_{11}H_{24}$ isomer
6A	85	n-hexane	22	169	acetophenone
7	86	chloroform	22A	170	cresol isomer
8	89	perfluorotoluene (es)	23	175	n-nonanal
8A	90	methylcyclopentane	23A	177	sat. hydrocarbon
9	94	benzene	24	179	ε-caprolactone
9A	96	cyclohexane	24A	182	C_2-alkyl phenol isomer
10	98	acetic acid	24B	185	C_2-alkyl phenol isomer
11	100	pentanal	24C	189	C_3-alkyl phenol isomer
11A	102	trichloroethylene	24D	190	naphthalene
11B	104	n-heptane	25	191	n-decanal
11C	109	C_7H_{14} isomer	25A	193	n-dodecane
12	115	toluene	26	207	n-undecanal
12A	117	C_8H_{18} isomer	27	208	n-tridecane + β-methylnaphthalene
13	119	n-hexanal			
14	123	n-octane	28	215	unsat. hydrocarbon (tent)
14A	134	ethylbenzene	29	221	sat. hydrocarbon
15	135	xylene isomer	29A	233	unsat. hydrocarbon
16	139	n-heptanal	29B	234	sat. hydrocarbon

[a] See Table 8 for sampling protocol.

Table B10. VOLATILE ORGANIC VAPORS IDENTIFIED IN AMBIENT AIR FROM LINDEN, NJ (P1/L3)[a]

Chromatographic Peak No.	Elution Temp. (°C)	Compound
1	49	CO_2
3	51	propane (tent.)
3A	52	C_4H_8 isomer
4	54	acetaldehyde
5	56	*n*-butane
6	59	isopentane
6A	59	propenal
6B	60	propanal
7	60	acetone
7A	61	*n*-pentane
7B	62	C_5H_{10} isomer
8	63	methylene chloride
10	67	C_4H_8O isomer (tent.)
10A	68	C_4H_6O aldehyde isomer
10B	68	C_5H_{10} isomer
11	69	2-methylpentane
12	71	3-methylpentane
12A	73	methyl ethyl ketone
12B	73	hexafluorobenzene (es)
13	74	*n*-hexane
14	76	2-butanol (tent.)
14A	78	C_8H_{18} isomer + perfluorotoluene (es)
15	79	methylcyclopentane
16	81	C_8H_{18} isomer
17	84	benzene
17A	84	C_8H_{18} isomer
17B	85	carbon tetrachloride (tent.)
18	86	cyclohexane
19	87	2-methylhexane
20	88	2,3-dimethylpentane
21	90	3-methylhexane
21A	91	C_8H_{16} isomer
21B	91	trichloroethylene (tent.)
22	92	C_9H_{20} isomer
23	93	*n*-heptane
24A	95	C_2-alkyl furan + alcohol (tent.)
24B	95	C_7H_{12} isomer (tent.)
24C	98	methylcyclohexane
25	99	2-methyl-4-pentanone
26	100	C_8H_{18} isomer
27	103	acetic acid
27A	104	C_8H_{16} isomer
28	107	toluene
28A	108	C_8H_{18} isomer
29	110	C_8H_{16} isomer
30	110	C_8H_{16} isomer
30A	111	$C_6H_{12}O$ isomer
31	111	C_8H_{16} isomer
32	112	4-methyl-3-penten-2-one
33	113	C_8H_{16} isomer
34	114	$C_8H_{18}O$ alcohol isomer
35	115	*n*-octane
35A	116	C_8H_{16} isomer
36	117	tetrachloroethylene
36A	118	C_8H_{16} isomer
37	120	C_9H_{18} isomer
38	122	C_9H_{20} isomer
38A	123	C_9H_{18} isomer
39	123	ethylcyclohexane + C_9H_{20} isomer
40	124	C_9H_{18} isomer
41	125	C_9H_{18} isomer
42	127	ethylbenzene
42A	127	C_9H_{18} isomer
43	129	xylene isomer
43A	130	C_9H_{18} isomer
44	131	C_9H_{20} isomer
44A	132	$C_7H_{14}O$ isomer
44B	132	$C_{10}H_{22}$ isomer
45	133	styrene
46	134	*o*-xylene
46A	134	C_9H_{20} isomer
46B	135	C_9H_{18} isomer
47	136	*n*-nonane
47A	139	$C_{10}H_{20}$ isomer
47B	139	alcohol isomer (tent.)
47C	139	$C_{10}H_{20}$ isomer
48	140	$C_{10}H_{22}$ isomer + isopropylbenzene
48A	141	$C_{10}H_{20}$ isomer
49	141	$C_{10}H_{22}$ isomer
49A	143	$C_{10}H_{20}$ isomer
50	143	C_9H_{18} isomer
51	144	$C_{10}H_{16}$ isomer
51A	145	benzaldehyde
51B	145	$C_{10}H_{20}$ isomer
52	146	*n*-propylbenzene
52A	146	$C_{10}H_{20}$ isomer
53	147	ethyltoluene isomer
53A	148	phenol

(continued)

Table B10 (cont'd)

Chromato-graphic Peak No.	Elution Temp. (°C)	Compound
53B	148	$C_{10}H_{22}$ isomer + 1,3,5-trimethylbenzene
54	149	$C_{11}H_{24}$ isomer
54A	150	$C_{10}H_{22}$ isomer
54B	150	o-ethyltoluene
55	151	$C_{11}H_{24}$ isomer
56	151	$C_{11}H_{24}$ isomer
57	152	$C_{10}H_{16}$ isomer
58	153	1,2,4-trimethylbenzene
58A	154	$C_{10}H_{20}$ isomer
59	155	n-decane
59A	156	dichlorobenzene isomer (trace)
60	156	$C_{11}H_{24}$ isomer
60A	157	$C_{11}H_{22}$ isomer
61	158	$C_{11}H_{24}$ isomer
61A	158	C_4-alkyl benzene isomer
62	159	1,2,3-trimethylbenzene + $C_{11}H_{24}$ isomer
63	160	$C_{11}H_{24}$ isomer
63A	161	$C_{10}H_{16}$ isomer
63B	161	C_3H_5-benzene isomer
64	162	C_4-alkyl cyclohexane isomer
64A	162	$C_{11}H_{22}$ isomer
65	163	$C_{11}H_{24}$ + C_4-alkyl benzene isomers
65A	163	C_4-alkyl benzene isomer
66	164	acetophenone + C_4-alkyl benzene isomer
67	165	cresol isomer
68	166	C_4-alkyl benzene + $C_{11}H_{24}$ isomers
68A	167	$C_{10}H_{18}$ + $C_{12}H_{24}$ isomers
69	167	$C_{11}H_{24}$ isomer
70	168	C_4-alkyl benzene isomer
70A	169	$C_{11}H_{22}$ isomer
71	169	C_4-alkyl benzene isomer
71A	170	$C_{12}H_{22}$ isomer
72	171	$C_{12}H_{24}$ isomer
72A	171	$C_{11}H_{22}$ isomer
73	172	n-undecane
73A	173	$C_{11}H_{22}$ + C_4-alkyl benzene isomers
74	173	$C_{13}H_{24}$ isomer
74A	174	$C_{12}H_{24}$ isomer
74B	175	C_2-alkyl phenol isomer
74C	175	$C_{10}H_{18}$ isomer (tent.)
74B	175	C_2-alkyl phenol isomer
74C	175	$C_{10}H_{18}$ isomer (tent.)
75	175	C_4-alkyl benzene isomer
75A	176	$C_{13}H_{26}$ isomer
76	177	dimethylphenol isomer
76A	178	$C_{13}H_{26}$ isomer
76B	179	$C_{11}H_{22}$ isomer
77	180	C_2-alkyl phenol isomer
78	182	dimethylphenol + unsat. hydrocarbon isomers
79	184	$C_{12}H_{26}$ isomer
79A	184	C_5-alkyl benzene isomer
80	185	C_3-alkyl phenol isomer
80A	186	$C_{13}H_{26}$ isomer
81	186	naphthalene
81A	187	$C_{12}H_{24}$ isomer
81B	188	C_5-alkyl benzene isomer
82	188	n-dodecane
82A	189	$C_{13}H_{26}$ isomer
83	190	C_3-alkyl phenol isomer
83A	191	$C_{13}H_{28}$ isomer
84	192	C_3-alkyl phenol isomer
84A	193	$C_{14}H_{26}$ isomer
85	194	$C_{14}H_{28}$ isomer
86	195	$C_{13}H_{26}$ isomer
87	196	$C_{14}H_{28}$ isomer
89	198	$C_{13}H_{28}$ isomer
90	200	$C_{14}H_{30}$ isomer
90A	202	$C_{13}H_{26}$ isomer
91	202	$C_{14}H_{28}$ isomer
92	203	β-methylnaphthalene + n-tridecane
93	206	α-methylnaphthalene
94A	209	C_5-alkyl phenol isomer (tent.)
95	211	$C_{13}H_{26}$ + $C_{14}H_{30}$ isomers
96	212	$C_{14}H_{30}$ isomer (tent.)
98	213	alkyl butyrate (BKG)
99	217	n-tetradecane
99A	219	C_2-alkyl naphthalene isomer
100	219	$C_{15}H_{32}$ isomer
100A	221	C_2-alkyl naphthalene isomer
101	222	$C_{15}H_{30}$ isomer (tent.)
102	226	$C_{16}H_{34}$ isomer
102A	228	$C_{15}H_{30}$ isomer
102B	229	$C_{15}H_{30}$ isomer
103	230	n-pentadecane

(continued)

Table B10 (cont'd)

Chromatographic Peak No.	Elution Temp. (°C)	Compound
104	232	unknown
104A	236	C_3-alkyl naphthalene isomer
106A	240	$C_{16}H_{34}$ isomer
106B	240	$C_{17}H_{36}$ isomer
106C	240	$C_{16}H_{32}$ isomer
107	240	sat. hydrocarbon
108	240	n-heptadecane
109	240	sat. hydrocarbon

[a] See Table 10 for sampling protocol.

Table B11. VOLATILE ORGANICS IDENTIFIED IN AMBIENT AIR FROM AMHERST, NY (P1/L3)

Chromato- graphic Peak No.	Elution Temp. (°C)	Compound
1	58	CO_2
2A	63	acetaldehyde
2B	70	isopentane
3A	71	propenal + propanal (tent.)
4	72	acetone
4A	72	n-pentane
5	74	methylene chloride
5A	76	C_7H_{16} isomer
5B	78	C_4H_8O isomer
5C	80	cyclopentane
6	81	2-methylpentane
6A	83	n-butanal
7	83	3-methylpentane
8	85	hexafluorobenzene (eS)
9	86	n-hexane
9A	86	chloroform
10	88	C_6H_{10} isomer (tent.)
11	90	perfluorotoluene (eS)
11A	91	C_7H_{14} isomer
11B	91	methylcyclopentane
11C	92	1,1,1-trichloroethane
12	95	benzene
12A	96	carbon tetrachloride
12B	97	cyclohexane
13	98	2-methylhexane
14	99	3-methylhexane
14A	101	pentanal (tent.)
14B	102	C_7H_{14} isomer
15	104	n-heptane
15A	109	methylcyclohexane
15B	110	C_8H_{18} isomer
16	116	toluene
17	118	acetic acid
17A	119	C_8H_{18} isomer
18	124	n-octane
18A	125	tetrachloroethylene
19A	131	C_9H_{20} isomer (tent.)
19B	134	ethylbenzene
20	136	xylene isomer
20A	136	C_9H_{20} isomer
20B	137	sat. hydrocarbon
20C	139	styrene (traces)
20D	140	heptanal (tent.)
21	141	o-xylene
22	143	n-nonane
23	146	$C_{10}H_{22}$ isomer
24	149	sat. hydrocarbon (tent.)
25	152	benzaldehyde
25A	152	n-propylbenzene
26	153	ethyltoluene isomer
26A	153	$C_{10}H_{22}$ isomer
27	155	$C_{11}H_{24}$ isomer
27A	156	phenol
27B	157	$C_{11}H_{24}$ isomer
28	158	n-octanal
28A	159	1,2,4-trimethylbenzene
29	161	n-decane
29A	162	dichlorobenzene isomer (traces)
30	165	$C_{11}H_{24}$ isomer
31	169	$C_{11}H_{24}$ isomer
31A	169	C_4-alkyl benzene isomer
32	170	acetophenone
33	172	cresol isomer
33A	173	sat. hydrocarbon
33B	175	C_4-alkyl benzene isomer
34	176	n-nonanal
34A	177	cresol isomer
35	178	n-undecane
35A	181	C_2-alkyl phenol isomer
36	183	C_2-alkyl phenol isomer
37	186	C_2-alkyl phenol isomer
38	187	C_2-alkyl phenol isomer
39	190	C_3-alkyl phenol isomer
39A	191	naphthalene
40	192	n-decanal
40A	193	C_2-alkyl phenol isomer
41	193	n-dodecane
41A	195	C_3-alkyl phenol isomer
42	198	alcohol unknown
44	206	undecanal (tent.)
45	207	n-tridecane
45A	208	[illegible]ethylnaphthalene
46	210	methylethyldioxolane (tent.)
47	218	alkyl butyrate
48	220	$C_{14}H_{28}$ isomer
49	221	n-tetradecane
49A	234	$C_{15}H_{30}$ isomer
50	235	n-pentadecane
51	240	diethyl phthalate
51A	240	$C_{16}H_{32}$ isomer

(continued)

Table B11 (cont'd)

Chromato- graphic Peak No.	Elution Temp. (°C)	Compound	Chromato- graphic Peak No.	Elution Temp. (°C)	Compound
53	240	*n*-hexadecane	53A	240	alkyl alcohol
			53B	240	sat. hydrocarbon

Table B12. VOLATILE ORGANICS IDENTIFIED IN AMBIENT AIR FROM BUFFALO, NY (P2/L10)

Chromato-graphic Peak No.	Elution Temp. (°C)	Compound
1	58	CO_2
2	62	acetaldehyde + C_4H_8 isomer
2A	62	C_4H_{10} isomer
2B	67	isopentane
2C	68	propenal (tent.)
2D	68	propanal (tent.)
3	69	acetone
3A	69	furan
4	70	n-pentane
4A	71	C_5H_8 isomer (traces)
4B	72	C_5H_{10} isomer
5	73	methylene chloride
6	74	CS_2
6A	75	C_5H_6 isomer
6B	78	2-methylpropenal or C_4H_6O isomer
6C	78	cyclopentane
7	79	2-methylpentane
7A	80	butanal
8	81	3-methylpentane
8A	82	methyl ethyl ketone
8B	82	C_6H_{12} isomer
9	83	hexafluorobenzene (es)
9A	83	2-methylfuran
10	84	n-hexane
10A	84	chloroform
10B	87	C_6H_{12} isomer
11	88	perfluorotoluene (es)
11A	89	methylcyclopentane
12	90	1,1,1-trichloroethane
12A	93	C_6H_{10} isomer
13	93	benzene
13A	95	cyclohexane
14	96	2-methylhexane
15	97	$C_5H_{10}O$ isomer
15A	98	n-pentanal
16	100	C_7H_{14} isomer
16A	100	trichloroethylene (traces)
16B	101	C_7H_{12} isomer
17	102	n-heptane
17A	104	C_7H_{14} isomer
17B	107	methylcyclohexane
18	114	acetic acid
19	115	toluene
20	117	C_8H_{18} isomer
21	118	C_8H_{18} isomer
22	119	n-hexanal
23	121	C_8H_{16} isomer
23A	122	C_8H_{16} isomer
24	123	n-octane
24A	124	tetrachloroethylene
24B	125	C_8H_{16} isomer
25	127	furfural
25A	130	C_8H_{16} isomer
25B	131	$C_6H_{12}O$ isomer (tent.)
26	134	ethylbenzene
26A	135	unsat. hydrocarbon
27	136	xylene isomer
27A	136	C_9H_{20} isomer
28	138	$C_7H_{14}O$ isomer
28A	138	C_9H_{18} isomer
29	139	styrene
30	140	N,N-dimethylacetamide
30A	142	C_9H_{18} isomer
31	143	n-nonane
32	145	C_9H_{18} isomer
32A	146	isopropylbenzene
33	146	$C_{10}H_{22}$ isomer
33A	147	$C_{10}H_{18}$ isomer (tent.)
34	148	$C_{10}H_{22}$ isomer
34A	149	C_3-alkyl cyclohexane isomer
35	149	$C_{11}H_{24}$ isomer
36	151	$C_{10}H_{20}$ isomer + benzaldehyde
36A	152	n-propylbenzene
37	153	ethyltoluene
38	154	$C_{10}H_{22}$ isomer + 1,3,5-trimethylbenzene
39	155	$C_{10}H_{22}$ isomer
39A	155	phenol + $C_{10}H_{20}$ isomer
40	156	o-ethyltoluene
40A	157	$C_{10}H_{20}$ isomer
40B	158	$C_{10}H_{18}$ isomer
41	158	n-octanal
41A	159	methylstyrene + $C_{10}H_{20}$ isomers
42	159	1,2,4-trimethylbenzene
42A	160	$C_{10}H_{20}$ isomer
43	161	n-decane
43A	162	$C_{10}H_{20}$ isomer
43B	165	C_4-alkyl benzene isomer (traces)
44	165	1,2,3-trimethylbenzene
45	166	$C_{11}H_{24}$ + C_3H_5-benzene isomers

(continued)

Table B12 (cont'd)

Chromatographic Peak No.	Elution Temp. (°C)	Compound
45A	167	indan
46	168	C_4-alkyl cyclohexane isomer
46A	168	indene
46B	169	C_4-alkyl benzene isomer
47	170	acetophenone + C_4-alkyl benzene isomer
47A	171	$C_{11}H_{22}$ isomer
47B	171	$C_{11}H_{24}$ isomer
47C	172	cresol isomer
48	172	$C_{11}H_{24}$ isomer
48A	173	$C_{10}H_{18}$ isomer (tent.)
49	174	$C_{11}H_{24}$ isomer
49A	174	C_4-alkyl benzene isomer
49B	175	C_4-alkyl benzene isomer
50	176	*n*-nonanal
50A	177	$C_{11}H_{22}$ isomer
51	178	*n*-undecane
51A	179	$C_{11}H_{22}$ isomer
51B	181	C_4-alkyl benzene isomer
52	181	$C_{12}H_{26}$ isomer
52A	182	$C_{11}H_{20}$ isomer (tent.)
53	183	C_2-alkyl phenol isomer
53A	184	C_4H_7-benzene isomer
53B	185	C_5-alkyl benzene isomer (traces)
54	185	$C_{11}H_{22}$ isomer
55	187	C_2-alkyl phenol + C_4-alkyl benzene isomer
55A	188	C_2-alkyl phenol isomer
56	188	$C_{12}H_{26}$ isomer
56A	189	$C_{12}H_{24}$ isomer
57	189	C_5-alkyl benzene isomer + sat. hydrocarbon (tent.)
57A	190	$C_{10}H_{20}O$ isomer
58	190	C_3-alkyl phenol isomer
58A	191	C_2-alkyl phenol isomer (tent.)
59	191	naphthalene
60	192	*n*-decanal
60A	193	$C_{10}H_{20}$ isomer
61	194	*n*-dodecane
61A	195	C_5-alkyl benzene isomer
62	196	$C_{13}H_{28}$ isomer
62A	201	$C_{12}H_{24}$ isomer
62B	202	$C_{13}H_{28}$ isomer
63	203	$C_{13}H_{28}$ isomer
64	205	sat. hydrocarbon
64A	206	$C_{13}H_{26}$ isomer
65	208	*n*-tridecane
65A	209	β-methylnaphthalene
66	211	α-methylnaphthalene
67	216	$C_{13}H_{26}$ isomer
67A	217	$C_{14}H_{30}$ isomer
68	220	biphenyl + $C_{14}H_{30}$ isomer
68A	221	$C_{14}H_{28}$ isomer
69	222	*n*-tetradecane
69A	224	C_2-alkyl naphthalene isomer
69B	226	C_2-alkyl naphthalene isomer
70	227	unsat. hydrocarbon
71	230	$C_{14}H_{28}$ isomer
72	231	$C_{15}H_{32}$ isomer
72A	232	unsat. hydrocarbon
73	235	*n*-pentadecane
73A	240	$C_{15}H_{30}$ isomer
74	240	diethyl phthalate
74A	240	$C_{16}H_{32}$ isomer
76	240	*n*-hexadecane
77	240	$C_{18}H_{38}$ isomer
77A	240	$C_{16}H_{32}$ isomer
78	240	*n*-heptadecane
79	240	sat. hydrocarbon
80	240	*n*-octadecane

Table B13. VOLATILE ORGANICS IDENTIFIED IN AMBIENT AIR FROM NIAGARA FALLS, NY (P1/L2)

Chromato-graphic Peak No.	Elution Temp. (°C)	Compound
1	58	CO_2
2	61	chloromethane (tent.) (traces)
3	62	acetaldehyde
3A	67	isopentane
3B	68	propenal (tent.)
4	69	acetone
5	70	n-pentane
5A	70	$C_4H_{10}O$ isomer (tent.)
5B	71	C_5H_{10} isomer
6	72	methylene chloride
6A	72	SO_2
6B	74	2,2-dimethylbutane
6C	77	C_4H_6O aldehyde isomer
6D	78	cyclopentane
7	79	2-methylpentane
7A	80	butanal
8	81	3-methylpentane
8A	81	methyl ethyl ketone
9	82	hexafluorobenzene (e[illegible])
10	83	n-hexane
11	84	chloroform
11A	87	C_6H_{12} isomer
12	88	perfluorotoluene (e[illegible])
12A	89	methylcyclopentane
12B	90	1,1,1-trichloroethane
13	93	benzene
13A	94	carbon tetrachloride (traces)
13B	95	cyclohexane
14	96	2-methylhexane
15	97	3-methylhexane
15A	99	unsat. hydrocarbon
16	100	trichloroethylene
17	102	n-heptane
18	104	alcohol (tent.)
18A	107	methylcyclohexane
19	109	C_8H_{18} isomer
20	113	acetic acid
21	115	toluene
22	116	C_8H_{18} isomer
23	118	C_8H_{18} isomer
24	119	n-hexanal
24A	121	C_8H_{16} isomer
24B	121	$C_6H_{12}O$ isomer
24C	123	C_8H_{16} isomer
25	123	n-octane
26	124	tetrachloroethylene
27A	129	C_9H_{20} isomer
28	130	chlorobenzene
29	134	ethylbenzene
29A	135	C_9H_{18} isomer
30	136	xylene isomer
30A	136	C_9H_{20} isomer
31	137	C_9H_{20} isomer
32	140	styrene + n-heptanal
33	141	o-xylene
33A	142	C_9H_{18} isomer
34	143	n-nonane
34A	146	$C_{10}H_{22}$ isomer
35	147	$C_{10}H_{22}$ isomer + isopropylbenzene
36	149	alcohol or unknown
37	150	$C_{10}H_{22}$ isomer
38	151	benzaldehyde
38A	152	n-propylbenzene
39	153	ethyltoluene isomer
40	155	1,3,5-trimethylbenzene + $C_{10}H_{22}$ isomer
41	156	$C_{11}H_{24}$ isomer
42	157	phenol
42A	157	$C_{10}H_{22}$ isomer
42B	157	o-ethyltoluene
43	158	$C_{11}H_{24}$ isomer
44	159	n-octanal
45	160	1,2,4-trimethylbenzene
46	161	n-decane
47	162	dichlorobenzene isomer
47A	165	$C_{11}H_{24}$ isomer
48	165	1,2,3-trimethylbenzene
48A	166	unknown
49	167	dichlorobenzene isomer
49A	169	C_4-alkyl benzene isomer
49B	170	C_4-alkyl benzene isomer
50	170	acetophenone
50A	171	C_4-alkyl benzene isomer
51	172	cresol isomer
51A	173	$C_{11}H_{24}$ isomer
52	174	C_4-alkyl benzene isomer
53	175	C_4-alkyl benzene isomer
54	176	n-nonanal
55	179	n-undecane
55A	181	C_4-alkyl benzene isomer

(continued)

Table B13 (cont'd)

Chromato-graphic Peak No.	Elution Temp. (°C)	Compound
56	182	C_4-alkyl benzene + ethylphenol isomers
57	184	dimethylphenol isomer
57A	186	C_4-alkyl benzene isomer
58	187	C_2-alkyl phenol isomer
59	189	C_2-alkyl phenol isomer
60	191	trichlorobenzene isomer
60A	191	C_3-alkyl phenol isomer
60B	192	C_2-alkyl phenol isomer (tent.)
60C	193	naphthalene
61	193	*n*-decanal
61A	194	$C_{12}H_{24}$ isomer
62	195	*n*-dodecane
63	196	C_3-alkyl phenol + trichlorobenzene
63A	197	C_3-alkyl phenol isomer
64	199	alcohol (tent.)
65	201	alcohol (tent.)
66	204	unsat. hydrocarbon (tent.)
67	206	$C_{11}H_{22}O$ isomer (tent.)
68	208	unknown
69	209	*n*-tridecane + β-methylnaphthalene
70	212	methylethyldioxolane isomer *or* unknown
70A	212	α-methylnaphthalene
71	217	$C_{14}H_{30}$ isomer
72	219	alkyl butyrate (tent.)
72A	220	biphenyl (traces)
72B	220	tetrachlorobenzene isomer (traces)
73	221	C_6-alkyl phenol isomer
74	223	*n*-tetradecane
74A	225	C_2-alkyl naphthalene isomer
74B	227	C_2-alkyl naphthalene (tent.)
74C	234	$C_{15}H_{30}$ isomer
75	236	*n*-pentadecane
76	239	unknown
77	240	diethyl phthalate
78A	240	*n*-hexadecane
79	240	C_8-alkyl phenol isomer
79A	240	tributyl phosphate
80	240	$C_{17}H_{36}$ isomer
81	240	alcohol *or* unknown

Table B14. VOLATILE ORGANICS IDENTIFIED IN AMBIENT AIR FROM NIAGARA FALLS, NY (P3/L5)

Chromato-graphic Peak No.	Elution Temp. (°C)	Compound	Chromato-graphic Peak No.	Elution Temp. (°C)	Compound
1	58	CO_2	25	141	o-xylene
2	62	acetaldehyde	26	143	n-nonane
3A	67	isopentane	27	147	isopropylbenzene
4	69	acetone	27A	148	$C_{10}H_{22}$ isomer
4A	69	n-pentane	28	150	$C_{10}H_{22}$ isomer
5	70	isopropanol	29	151	benzaldehyde
6	72	methylene chloride	30	152	n-propylbenzene
6A	76	C_4H_6O isomer	30A	153	ethyltoluene isomer
6B	77	cyclopentane	31	156	phenol
6C	78	2-methylpentane	32	159	C_3-alkyl benzene isomer
6D	79	vinyl acetate (tent.)	33	161	n-decane
6E	79	butanal	33A	162	dichlorobenzene isomer
6F	80	methyl vinyl ketone			(traces)
6G	80	3-methylpentane	33B	165	C_3-alkyl benzene isomer
7	81	methyl ethyl ketone	33C	166	$C_{11}H_{24}$ isomer
8	82	hexafluorobenzene (es)	33D	167	$C_{10}H_{16}$ isomer
9	83	n-hexane	34	168	cresol isomer
10	83	chloroform + ethyl acetate	35	170	$C_{10}H_{18}$ + C_4-alkyl benzene
11	87	perfluorotoluene (es)			isomers
11A	88	methylcyclopentane	36	171	acetophenone
11B	89	1,1,1-trichloroethane	36A	172	cresol isomer
11C	92	benzene	37	173	phenyl allyl ether (tent.)
12	94	1-butanol	37A	174	C_4-alkyl benzene isomer
12A	95	C_7H_{16} isomer	37B	175	C_4-alkyl benzene isomer
12B	97	C_7H_{16} isomer	38	176	n-nonanal
12C	99	trichloroethylene	38A	177	C_2-alkyl phenol isomer
12D	101	n-heptane	39	178	n-undecane
12E	102	alcohol (tent.)	39A	178	methylbenzofuran isomer
13	104	alcohol (tent.)	39B	181	C_2-alkyl phenol isomer
13A	107	C_7H_{14} isomer	40	183	C_2-alkyl phenol isomer
14	107	4-methyl-2-pentanone	41	184	unknown
15	110	acetic acid	42	187	C_2-alkyl phenol isomer
16	114	toluene	43	189	C_2-alkyl phenol isomer
17	116	C_8H_{18} isomer	43A	191	C_3-alkyl phenol isomer
18	117	C_8H_{18} isomer	43B	192	naphthalene
18A	118	C_8H_{16} isomer (tent.)	44	193	n-decanal
19	119	n-hexanal	45	194	n-dodecane
19A	120	C_8H_{16} isomer	45A	198	C_3-alkyl phenol isomer
20	123	n-octane	46	199	unknown
21	124	tetrachloroethylene	46A	202	C_4-alkyl phenol isomer
21A	129	C_9H_{20} isomer	47	209	n-tridecane
21B	130	ethylcyclohexane	47A	209	β-methylnaphthalene
22	130	C_9H_{20} isomer	48	211	unknown + α-methylnaphthalene
22A	131	C_9H_{18} isomer	49	217	alkyl butyrate (tent.)
23	134	ethylbenzene	50	219	alkyl butyrate
24	136	xylene isomer	51	222	diphenyl ether + n-tetradecane

(continued)

Table B14 (cont'd)

Chromato-graphic Peak No.	Elution Temp. (°C)	Compound
52	236	*n*-pentadecane
53	239	unknown
54	240	diethyl phthalate
55A	240	alkyl phenol
55B	240	$C_{18}H_{38}$ isomer

Table B15. VOLATILE ORGANICS IDENTIFIED IN AMBIENT AIR FROM AMHERST, NY (P4/L12)

Chromatographic Peak No.	Elution Temp. (°C)	Compound
1	58	CO_2
2	62	acetaldehyde
2A	62	C_4H_{10} isomer
2B	67	isopentane
2C	67	propenal
2D	68	propanal
3	68	acetone
3A	68	furan (traces)
4	69	n-pentane
5	71	methylene chloride
5A	73	C_6H_{14} isomer
5B	76	methylpropenal or C_4H_6O isomer
5C	77	cyclopentane
6	78	2-methylpentane
6A	79	butanal
7	80	3-methylpentane
7A	81	methyl ethyl ketone
8	82	hexafluorobenzene (eS)
9	83	n-hexane
9A	83	chloroform
9B	86	C_6H_{12} isomer
10	87	perfluorotoluene (eS)
10A	87	methylcyclopentane
10B	89	1,1,1-trichloroethane
11	92	benzene
11A	94	cyclohexane
12	95	2-methylhexane
12A	96	$C_5H_{10}O$ isomer (tent.)
13	96	3-methylhexane
13A	97	n-pentanal
13B	98	C_7H_{14} isomer
14	99	trichloroethylene
15	101	n-heptane
15A	106	methylcyclohexane
16	108	C_8H_{18} isomer
17	111	acetic acid
18	113	toluene
19	115	C_8H_{18} isomer
20	117	C_8H_{18} isomer
21	118	n-hexanal
21A	118	C_8H_{16} isomer
22	124	tetrachloroethylene
22A	130	C_8H_{16} isomer (tent.)
23	133	ethylbenzene
23A	134	C_9H_{18} isomer
24	135	xylene isomer
24A	135	C_9H_{20} isomer
25	136	C_9H_{20} isomer
26	138	styrene
27	139	o-xylene
27A	140	C_9H_{18} isomer
28	141	n-nonane
28A	143	C_9H_{18} isomer
29	145	$C_{10}H_{22}$ isomer + isopropylbenzene
30	147	$C_{10}H_{22}$ isomer + unknown
31	148	$C_{10}H_{22}$ isomer
32	149	benzaldehyde
33	151	n-propylbenzene
34	152	ethyltoluene isomer
34A	153	benzonitrile
34B	153	1,3,5-trimethylbenzene
35	153	$C_{10}H_{22}$ isomer
35A	154	phenol
36	155	$C_{10}H_{22}$ isomer
36A	155	o-ethyltoluene
37	157	n-octanal
37A	157	$C_{10}H_{20}$ isomer
38	158	1,2,4-trimethylbenzene
39	160	n-decane
39A	161	dichlorobenzene isomer
39B	163	C_4-alkyl benzene isomer
40	163	1,2,3-trimethylbenzene + $C_{11}H_{24}$ isomer
41	164	$C_{11}H_{24}$ isomer
41A	165	C_3H_5-benzene + $C_{11}H_{24}$ isomers
42	166	$C_{10}H_{20}$ isomer
42A	167	$C_{11}H_{22}$ isomer
43	168	C_4-alkyl benzene isomer
44	169	acetophenone
44A	169	C_4-alkyl benzene isomer
45	170	cresol + $C_{11}H_{24}$ isomers
46	171	indan + $C_{11}H_{24}$ isomer
47	172	C_4-alkyl benzene + sat. hydrocarbon
47A	173	C_4-alkyl benzene isomer
48	174	n-nonanal
48A	175	$C_{11}H_{22}$ isomer
49	177	n-undecane
50	180	C_4-alkyl benzene isomer
51	181	C_2-alkyl phenol isomer
52	185	C_2-alkyl phenol isomer

(continued)

Table B15 (cont'd)

Chromato-graphic Peak No.	Elution Temp. (°C)	Compound	Chromato-graphic Peak No.	Elution Temp. (°C)	Compound
53	186	C_2-alkyl phenol isomer	62	216	alkyl butyrate
54	189	C_3-alkyl phenol isomer	63	217	alkyl butyrate
54A	190	naphthalene	64	221	n-tetradecane
55	191	n-decanal	64A	230	$C_{15}H_{32}$ isomer
56	192	n-dodecane	64B	233	$C_{15}H_{30}$ isomer
57	193	C_3-alkyl phenol +	65	234	n-pentadecane
		$C_{13}H_{28}$ isomers	66	236	unknown
58	197	unknown	67	240	diethyl phthalate
59	198	sat. hydrocarbon	68A	240	n-hexadecane
59A	206	$C_{13}H_{26}$ isomer	68B	240	$C_{17}H_{36}$ isomer
60	207	n-tridecane			
60A	208	β-methylnaphthalene			
61	210	α-methylnaphthalene			

APPENDIX C

MAPS DEPICTING SAMPLING SITES AND LOCATIONS THROUGHOUT CONTINENTAL U.S.

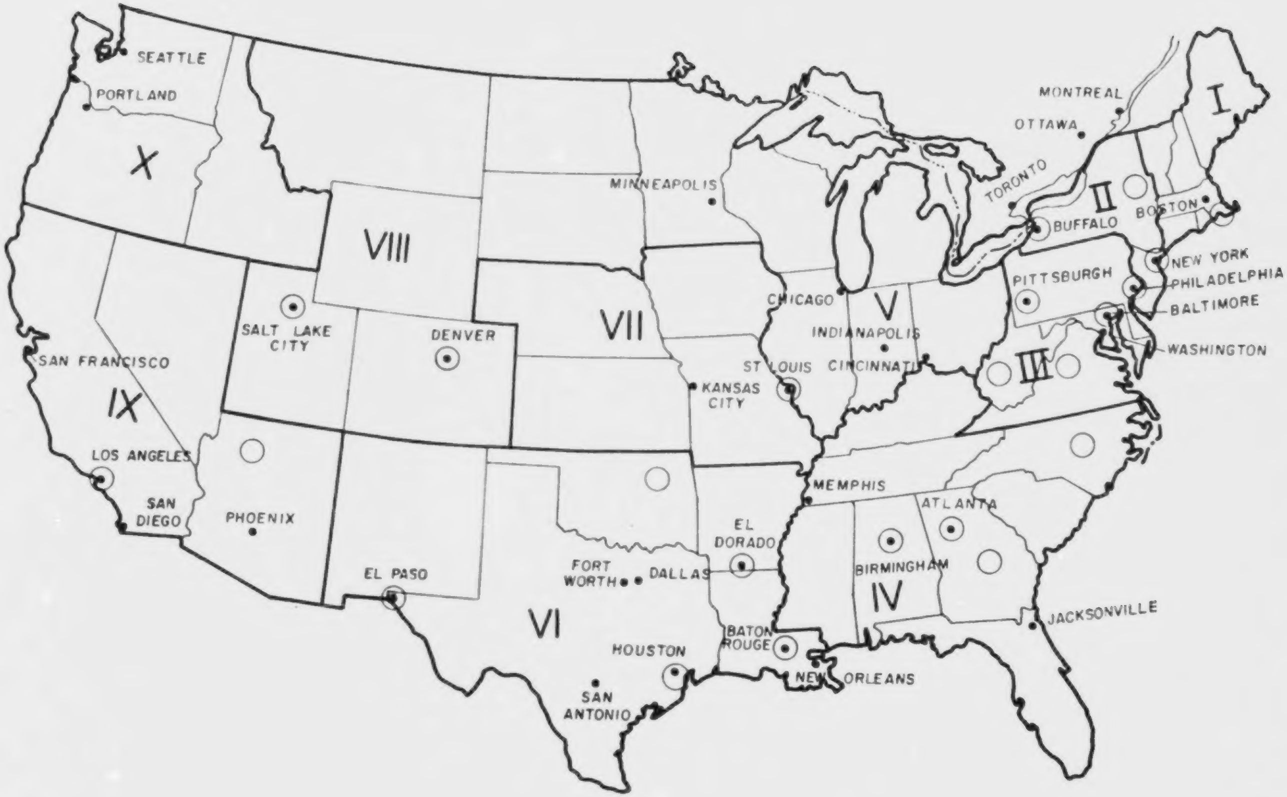

I
II
III
IV
V
VI
VII
VIII
IX
X
SEATTLE
PORTLAND
SAN FRANCISCO
LOS ANGELES
SAN DIEGO
PHOENIX
SALT LAKE CITY
DENVER
EL PASO
MINNEAPOLIS
KANSAS CITY
ST LOUIS
CHICAGO
INDIANAPOLIS
CINCINNATI
MEMPHIS
EL DORADO
FORT WORTH
DALLAS
HOUSTON
SAN ANTONIO
BATON ROUGE
NEW ORLEANS
BIRMINGHAM
ATLANTA
JACKSONVILLE
PITTSBURGH
BUFFALO
TORONTO
OTTAWA
MONTREAL
BOSTON
NEW YORK
PHILADELPHIA
BALTIMORE
WASHINGTON

Figure C1. Map of Continental U. S. depicting EPA regional territories. Circles indicate geographical areas sampled by RTI under EPA contracts.

EPA REGION IX

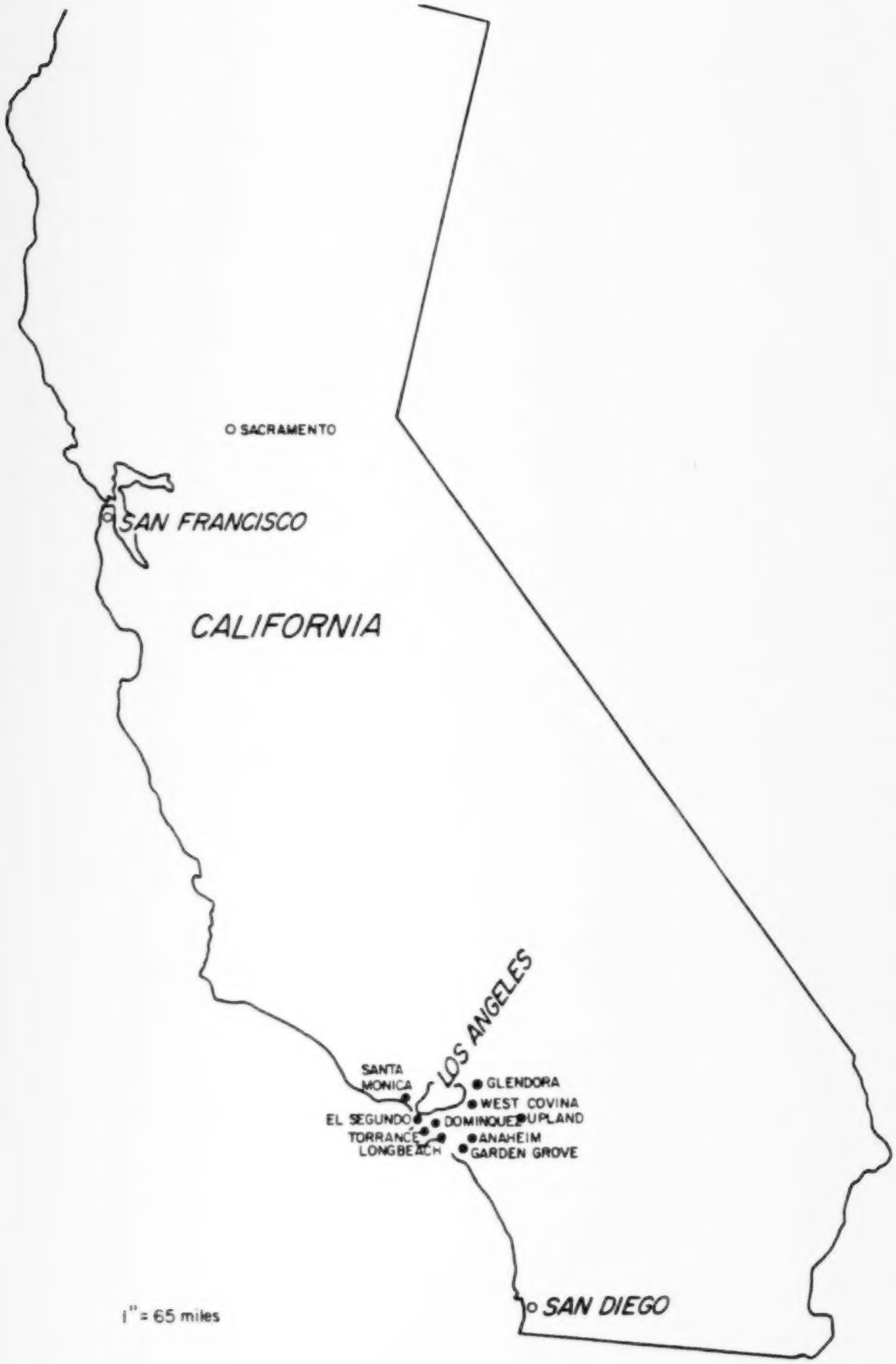

SACRAMENTO
SAN FRANCISCO
CALIFORNIA
LOS ANGELES
SANTA MONICA
GLENDORA
WEST COVINA
EL SEGUNDO
DOMINQUEZ
UPLAND
TORRANCE
ANAHEIM
LONGBEACH
GARDEN GROVE
SAN DIEGO
1"= 65 miles

Figure C2. Map of California. Solid circles indicate cites sampled.

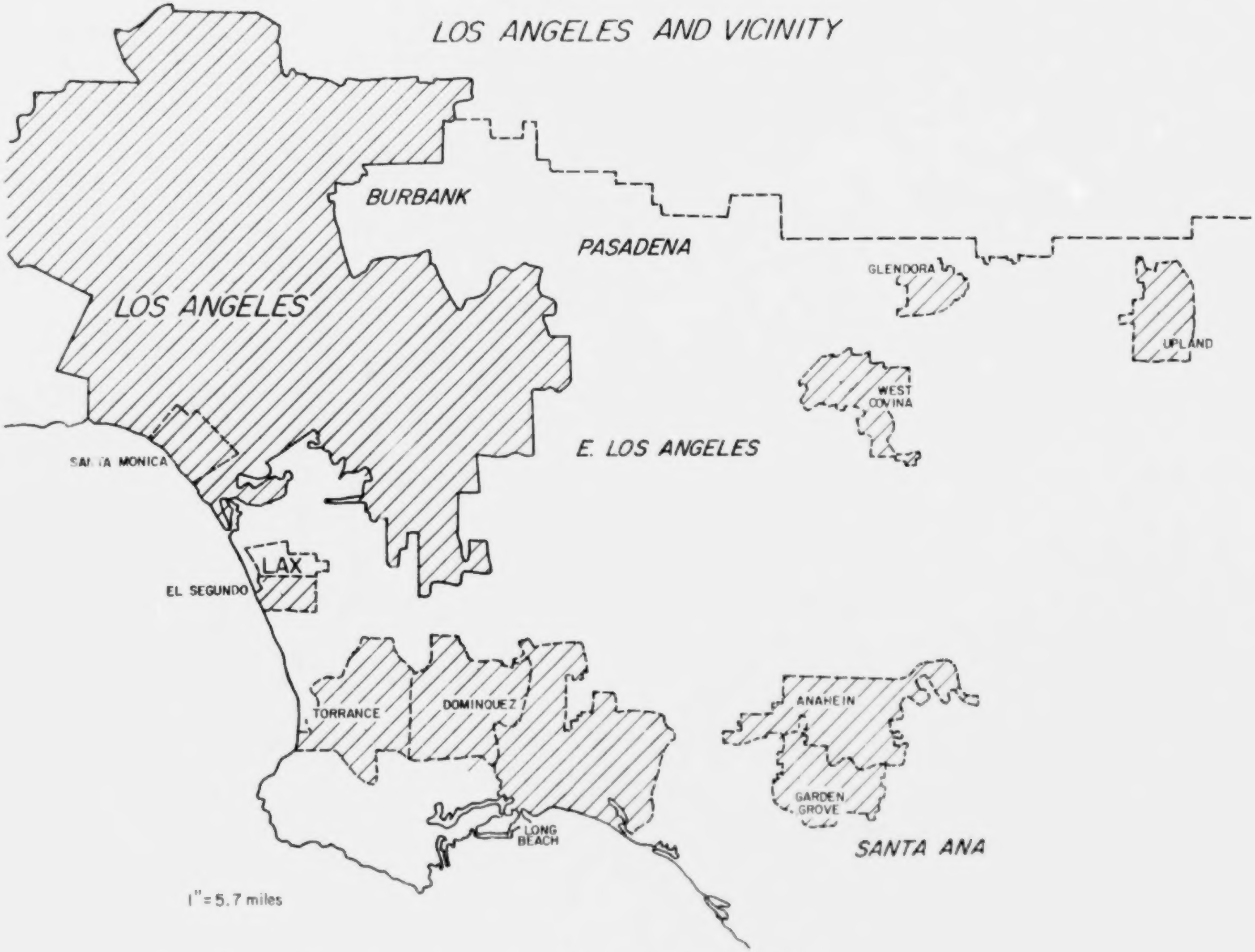

LOS ANGELES AND VICINITY
LOS ANGELES
BURBANK
PASADENA
GLENDORA
UPLAND
WEST COVINA
E. LOS ANGELES
SANTA MONICA
LAX
EL SEGUNDO
TORRANCE
DOMINQUEZ
ANAHEIN
GARDEN GROVE
LONG BEACH
SANTA ANA
1" = 5.7 miles

Figure C3. Map of Los Angeles, CA, and vicinity

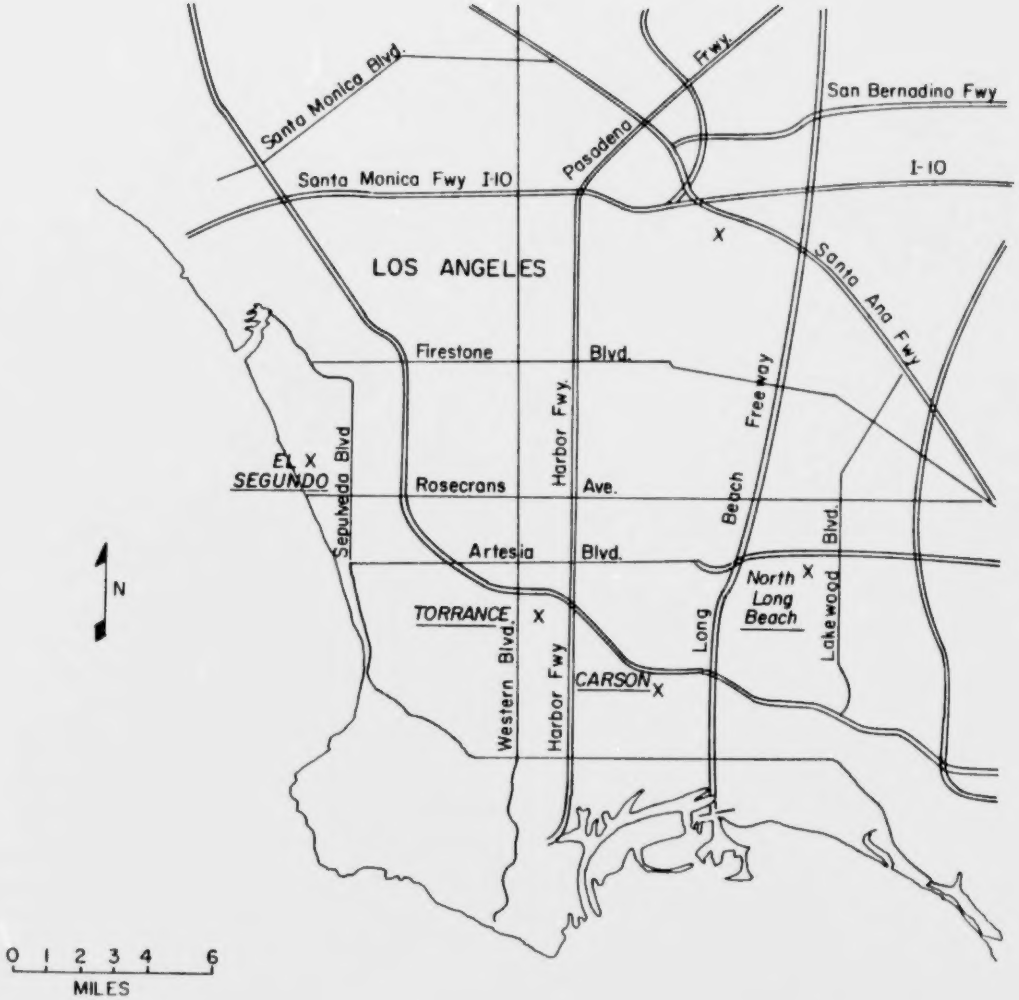

Santa Monica Blvd.
Pasadena Frwy.
San Bernadino Fwy
Santa Monica Fwy I-10
I-10
X
LOS ANGELES
Santa Ana Fwy
Firestone Blvd.
Harbor Fwy.
Freeway
EL X SEGUNDO
Sepulveda Blvd
Rosecrans Ave.
Beach
Artesia Blvd.
Lakewood Blvd.
North X Long Beach
N
TORRANCE X
Long
Western Blvd.
Harbor Fwy
CARSON X
0 1 2 3 4 6
MILES

Figure C4. Map depicting sampling locations (x) in Los Angeles, CA, and vicinity

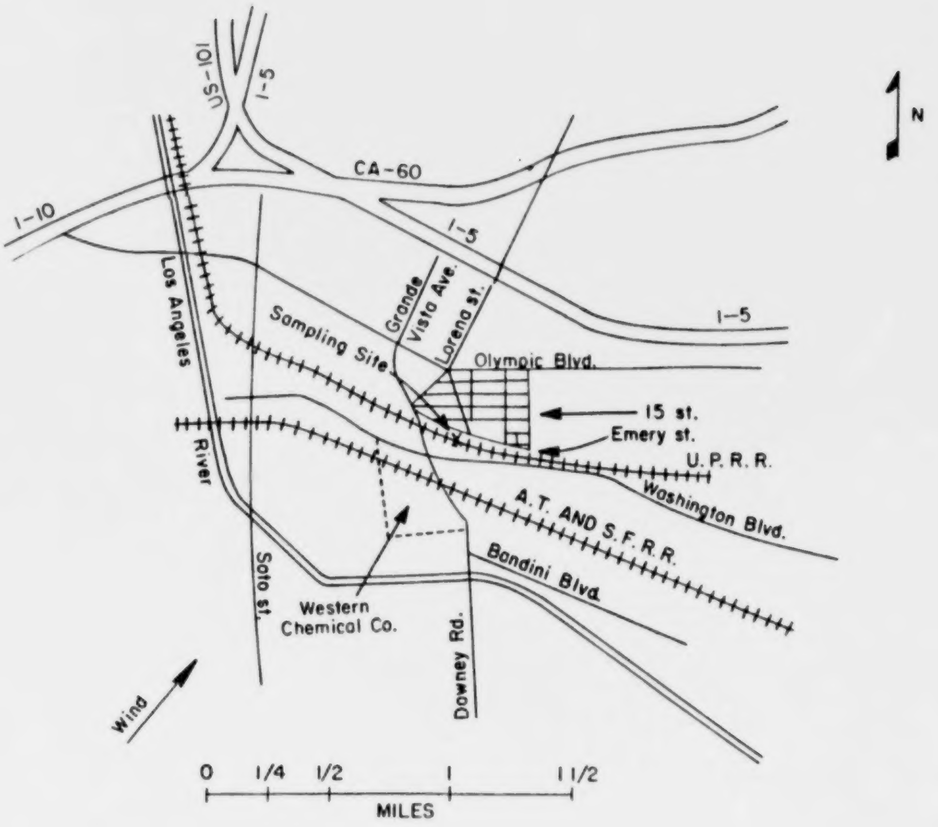

US-101
I-5
CA-60
I-10
I-5
I-5
Los Angeles
River
Sampling Site
Grande
Vista Ave.
Lorena st.
Olympic Blvd.
15 st.
Emery st.
U. P. R. R.
Washington Blvd.
A. T. AND S. F. R. R.
Bandini Blvd.
Soto st.
Western
Chemical Co.
Downey Rd.
Wind
N
0
1/4
1/2
1
1 1/2
MILES

Figure C5. Map depicting sampling locations in Los Angeles, CA.

EPA REGION VIII

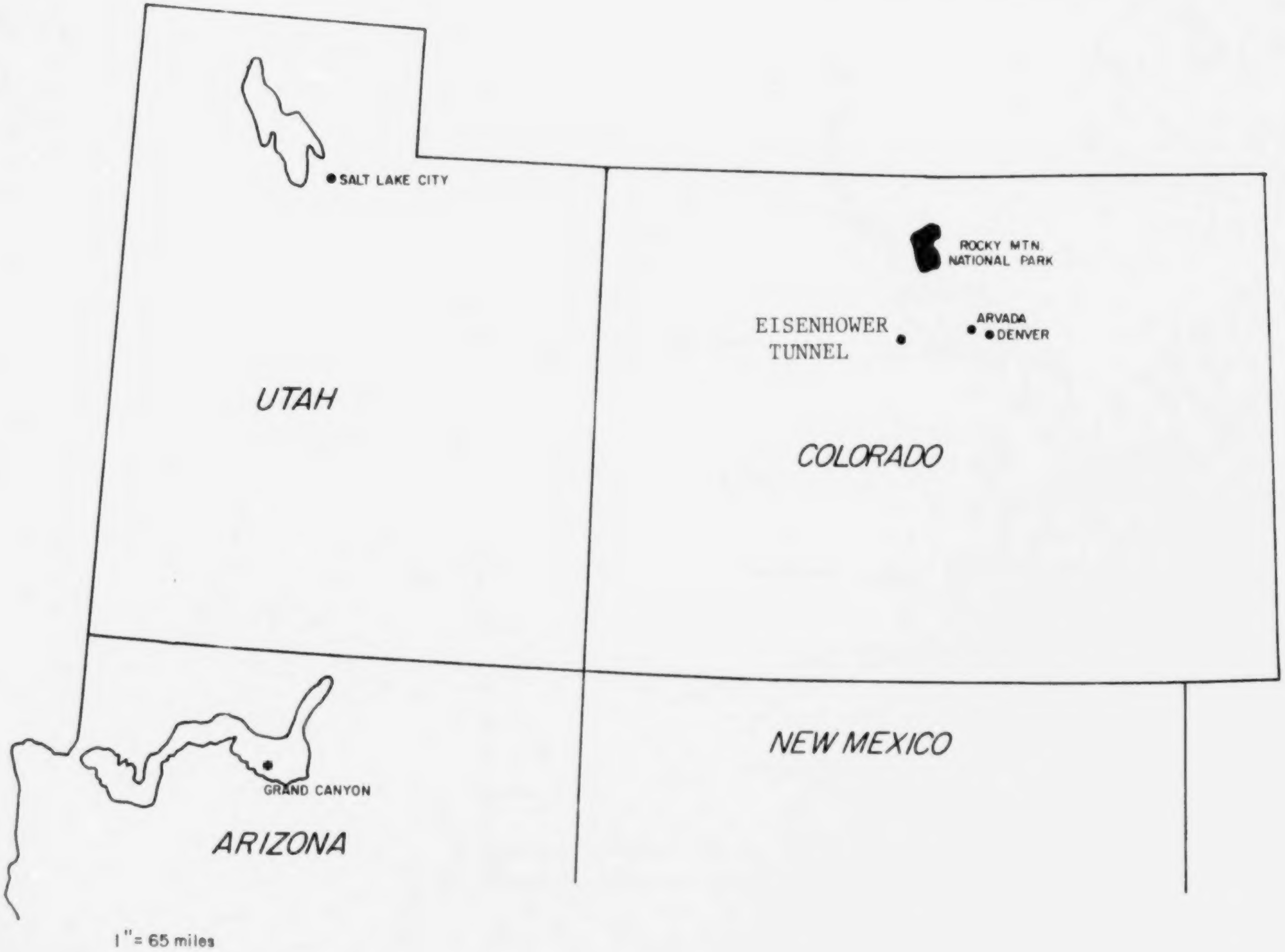

SALT LAKE CITY
ROCKY MTN.
NATIONAL PARK
EISENHOWER
TUNNEL
ARVADA
DENVER
UTAH
COLORADO
NEW MEXICO
GRAND CANYON
ARIZONA
1" = 65 miles

Figure C6. Map of "Four Corner" States. Solid circles indicate sampling sites.

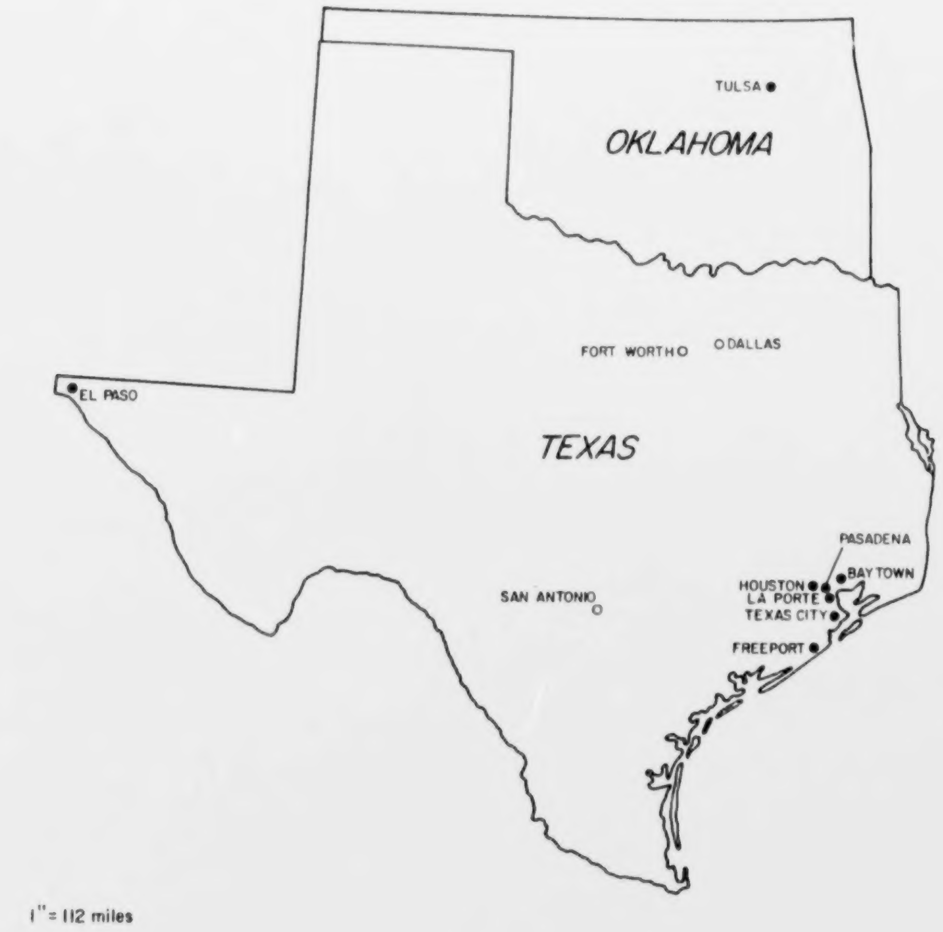
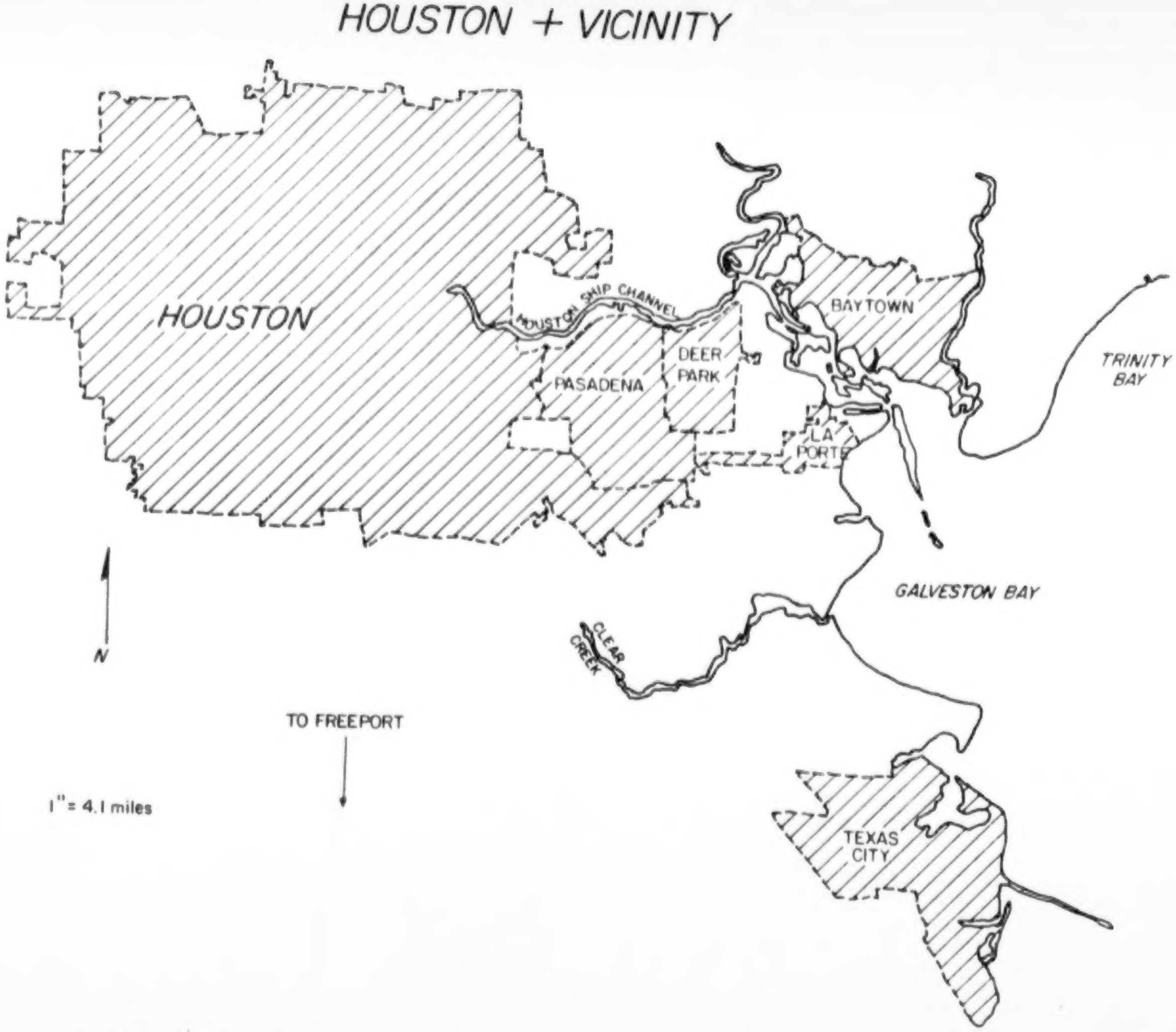

TULSA
OKLAHOMA
FORT WORTH
DALLAS
EL PASO
TEXAS
PASADENA
HOUSTON
BAY TOWN
LA PORTE
SAN ANTONIO
TEXAS CITY
FREEPORT
1" = 112 miles

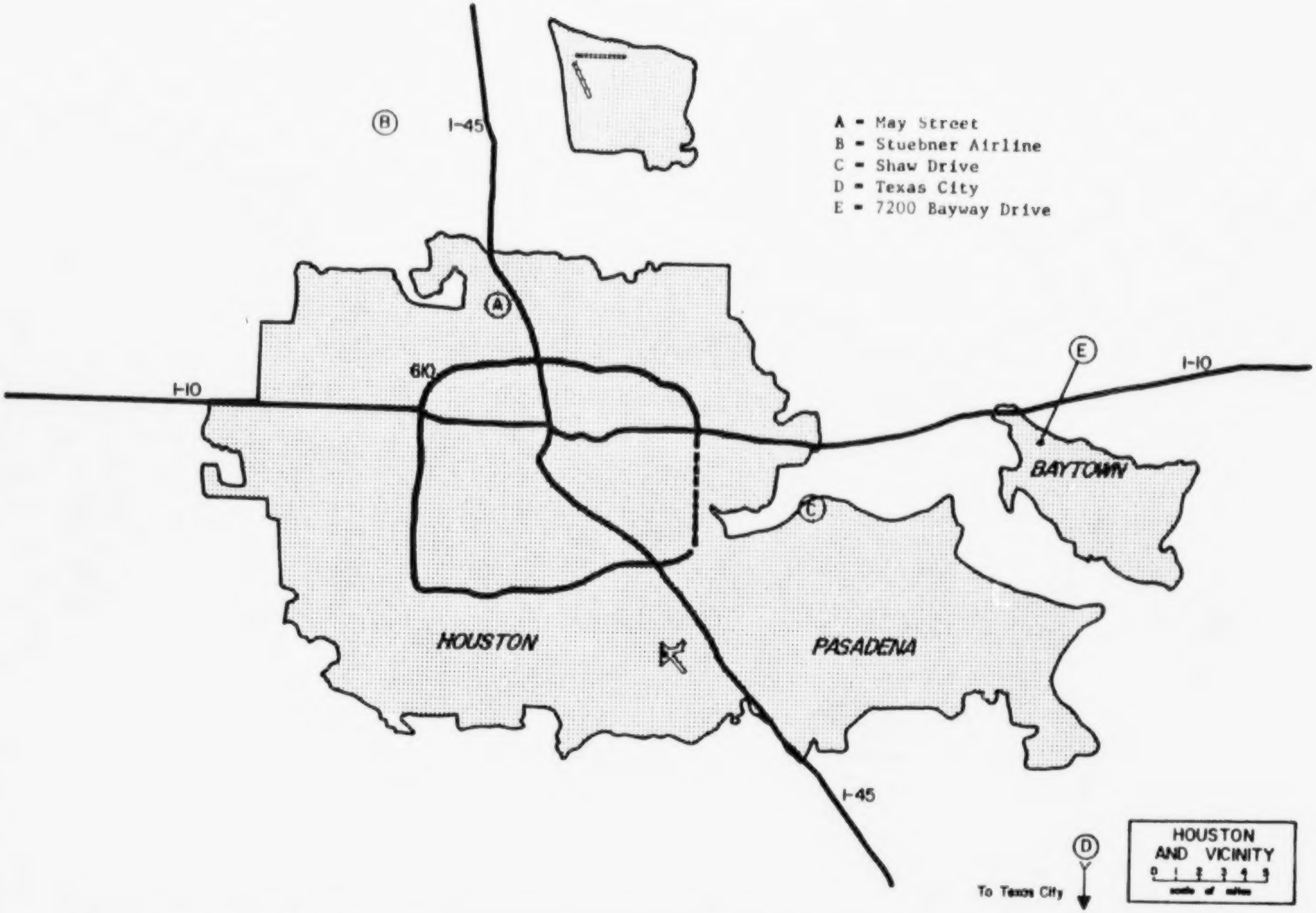
Figure C7. Texas and Oklahoma maps. Solid circles indicate sites sampled.



HOUSTON + VICINITY

HOUSTON
HOUSTON SHIP CHANNEL
PASADENA
DEER PARK
BAYTOWN
LA PORTE
TRINITY BAY
GALVESTON BAY
CLEAR CREEK
TEXAS CITY
N
TO FREEPORT
1" = 4.1 miles

Figure C8. Perspective map of Houston, TX, and vicinity



A = May Street
B = Stuebner Airline
C = Shaw Drive
D = Texas City
E = 7200 Bayway Drive
I-45
I-10
610
HOUSTON
PASADENA
BAYTOWN
A
B
C
D
E
To Texas City
HOUSTON AND VICINITY
0 1 2 3 4 5
scale of miles

Figure C9. Map of Houston, Texas and vicinity depicting sampling locations (A-E).

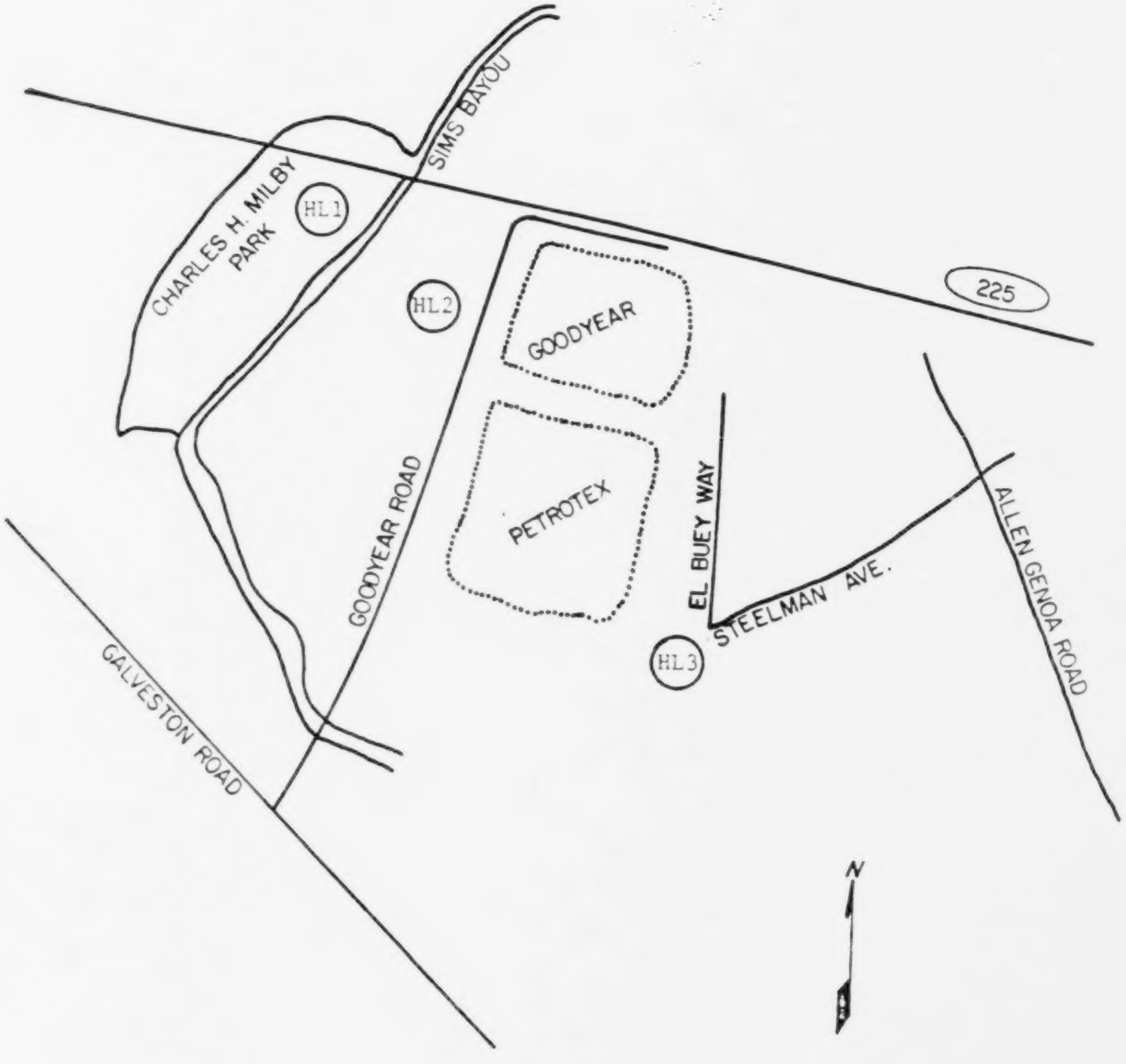

SIMS BAYOU
CHARLES H. MILBY PARK
HL1
HL2
225
GOODYEAR
PETROTEX
GOODYEAR ROAD
EL BUEY WAY
STEELMAN AVE.
ALLEN GENOA ROAD
HL3
GALVESTON ROAD
N

Figure C10. Sampling locations at Pasadena, TX, site.

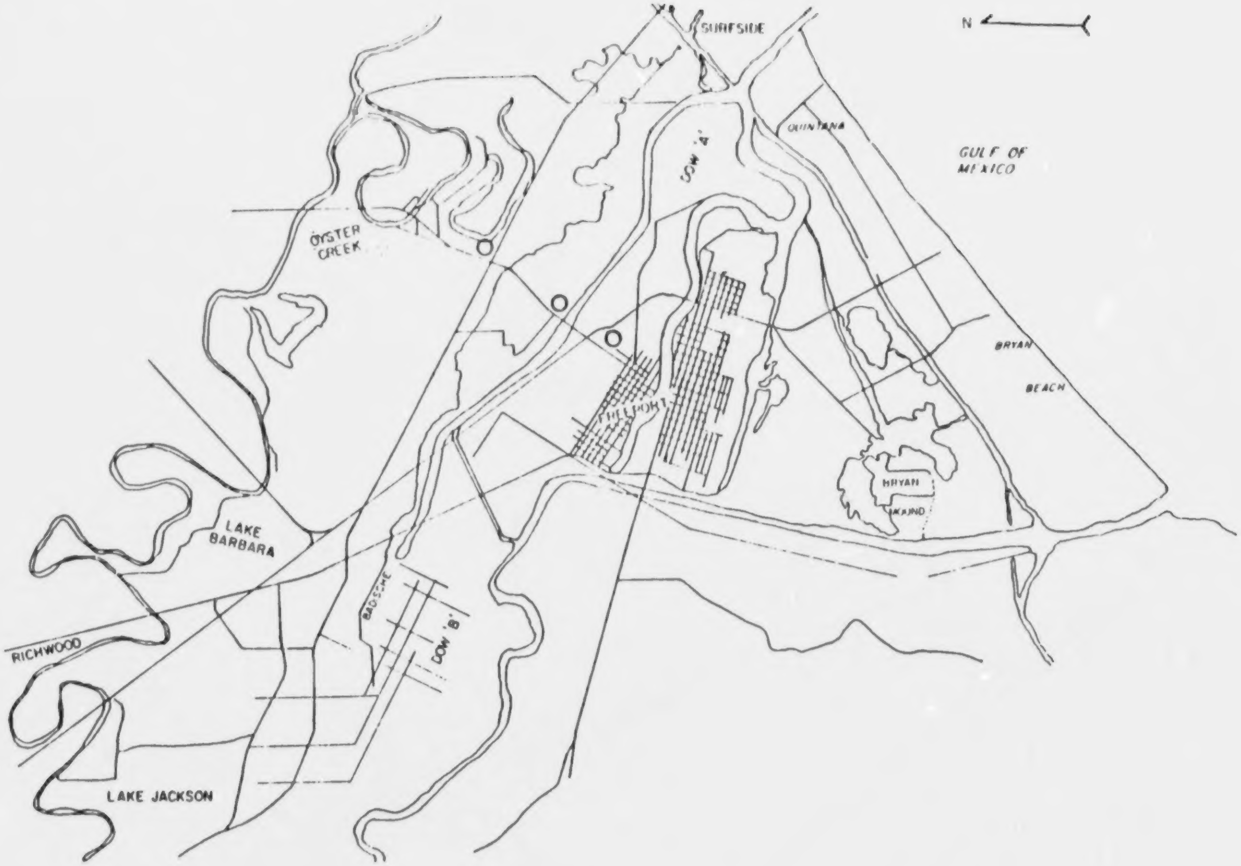

N
SURFSIDE
QUINTANA
GULF OF MEXICO
DOW 'A'
OYSTER CREEK
FREEPORT
BRYAN
BEACH
BRYAN MOUND
LAKE BARBARA
BADSCHE
DOW 'B'
RICHWOOD
LAKE JACKSON

Figure C11. Sampling site in Freeport, TX (Dow 'A').

EPA REGION VI

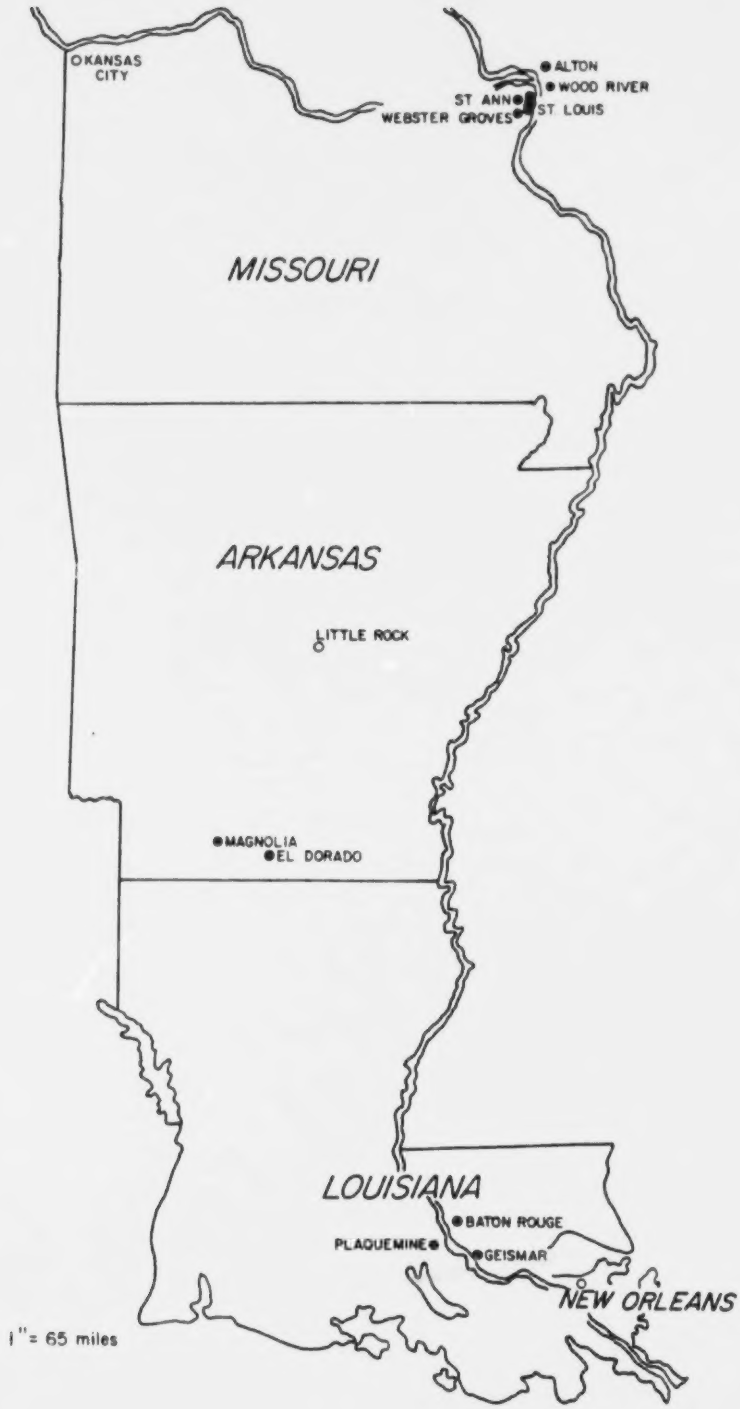

KANSAS CITY
ALTON
WOOD RIVER
ST ANN
ST LOUIS
WEBSTER GROVES
MISSOURI
ARKANSAS
LITTLE ROCK
MAGNOLIA
EL DORADO
LOUISIANA
BATON ROUGE
PLAQUEMINE
GEISMAR
NEW ORLEANS
1" = 65 miles

Figure C12. Map depicting south/central states. Solid circles represent cities sampled.

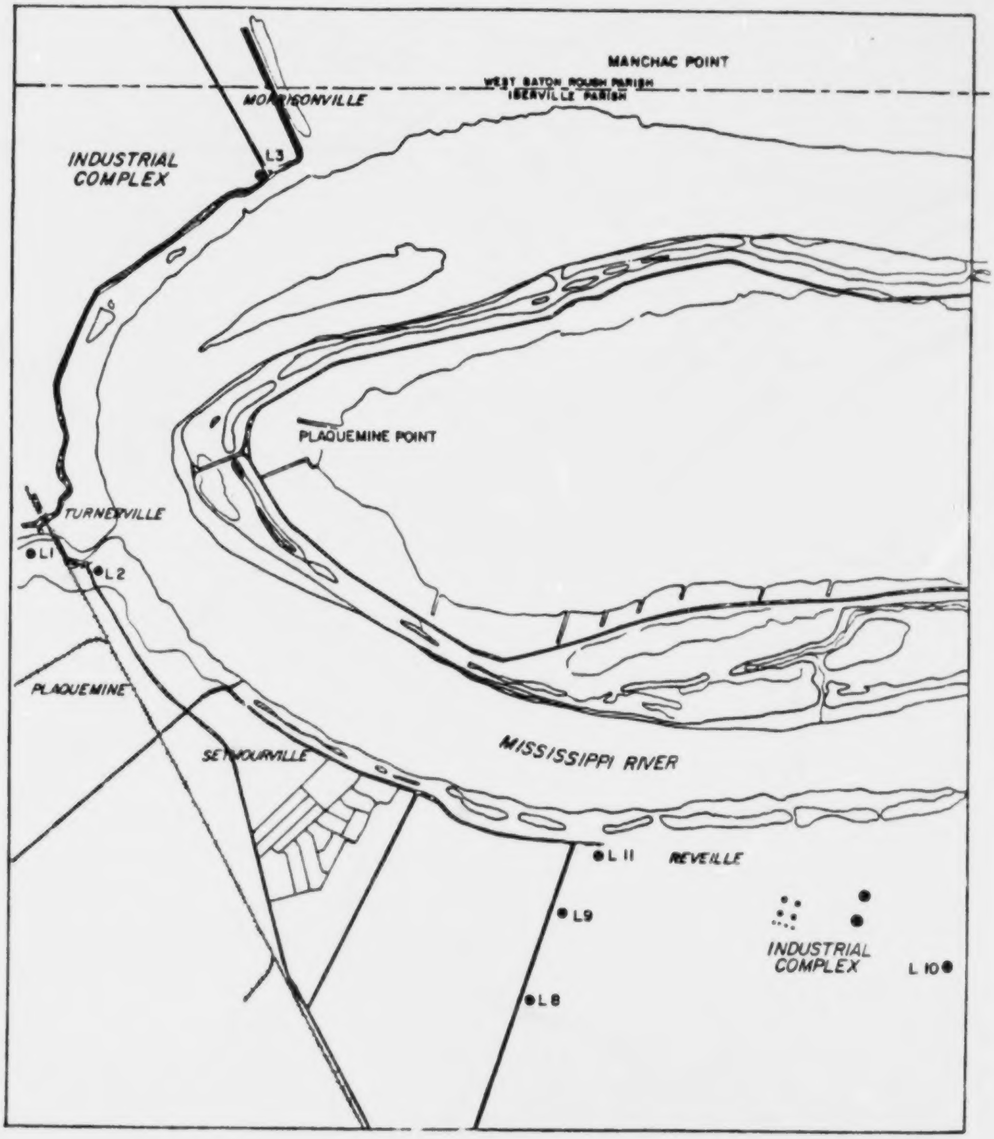

MANCHAC POINT
WEST BATON ROUGE PARISH
IBERVILLE PARISH
MORRISONVILLE
INDUSTRIAL COMPLEX
L3
PLAQUEMINE POINT
TURNERVILLE
L1
L2
PLAQUEMINE
SEYMOURVILLE
MISSISSIPPI RIVER
L 11
REVEILLE
L9
INDUSTRIAL COMPLEX
L 10
L8

Figure C13. Map depicting locations of ambient air sampling network in Iberville Parish, LA.

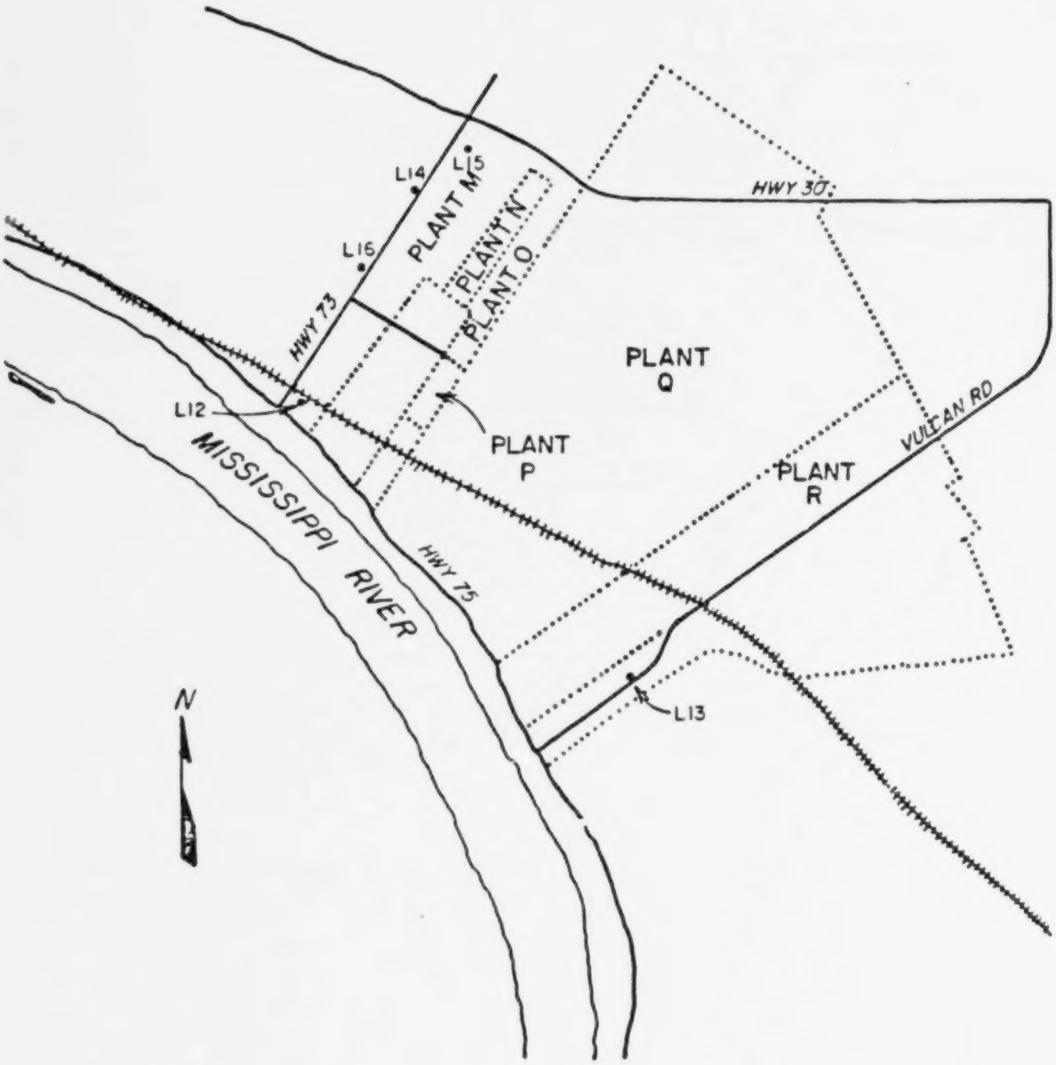

L15
L14
L16
PLANT M
PLANT N
PLANT O
HWY 30
HWY 73
PLANT Q
VULCAN RD
L12
PLANT P
PLANT R
MISSISSIPPI RIVER
HWY 75
L13
N

Figure C14. Sampling site and locations in Geismar, LA, area. M = Borden Chemical Co., N = Monochem, Inc., O = Uniroyal Inc., P = Rubicon Chemical, Inc., Q = BASF Wyandotte Chemical Corp., R = Shell Chemical Co., S = Vulcan Materials, Inc.

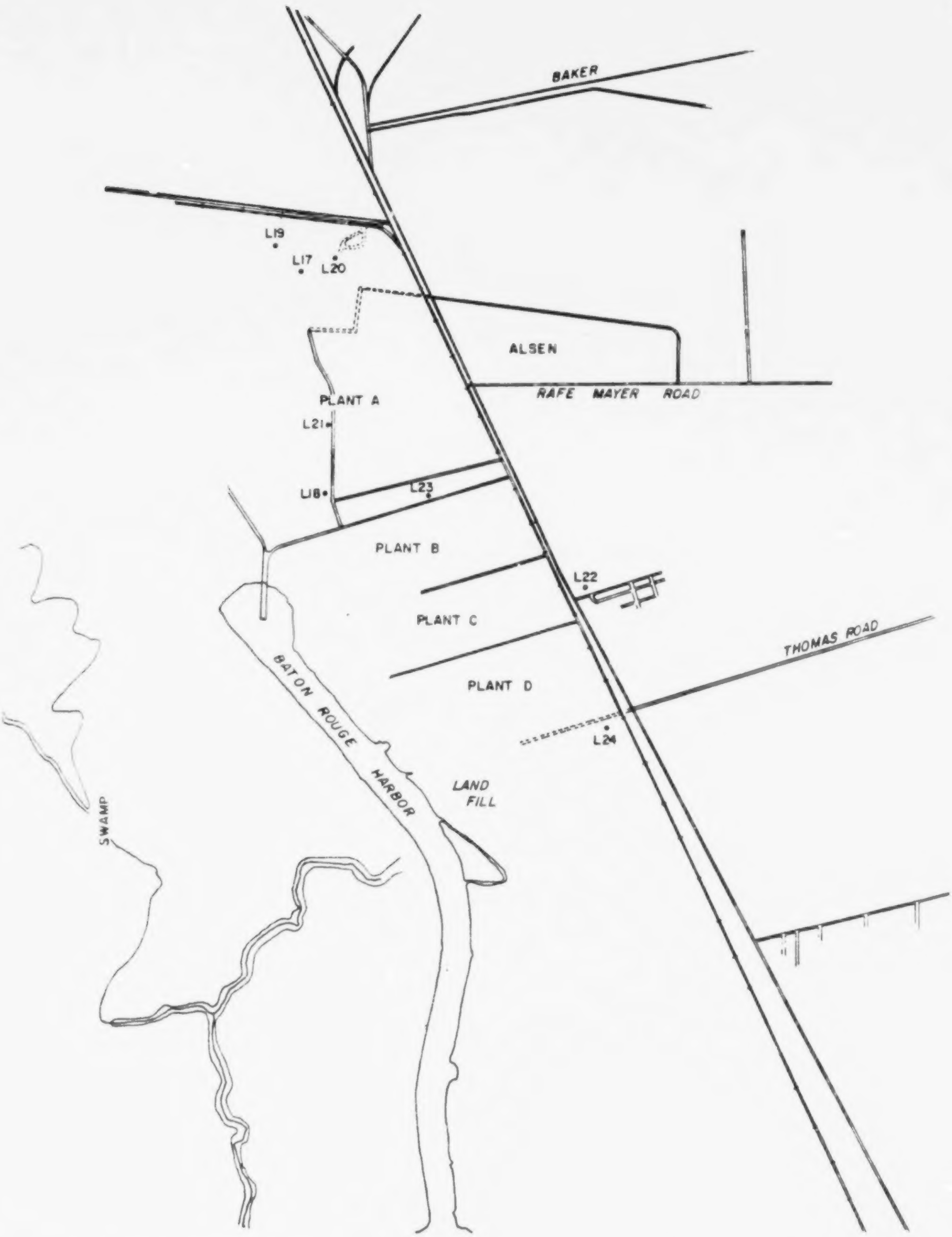

BAKER
L19
L17
L20
ALSEN
RAFE MAYER ROAD
PLANT A
L21
L18
L23
PLANT B
L22
PLANT C
THOMAS ROAD
PLANT D
L24
BATON ROUGE HARBOR
LAND FILL
SWAMP

Figure C15. Sampling site and locations in Baton Rouge, LA area.

EPA REGION VII

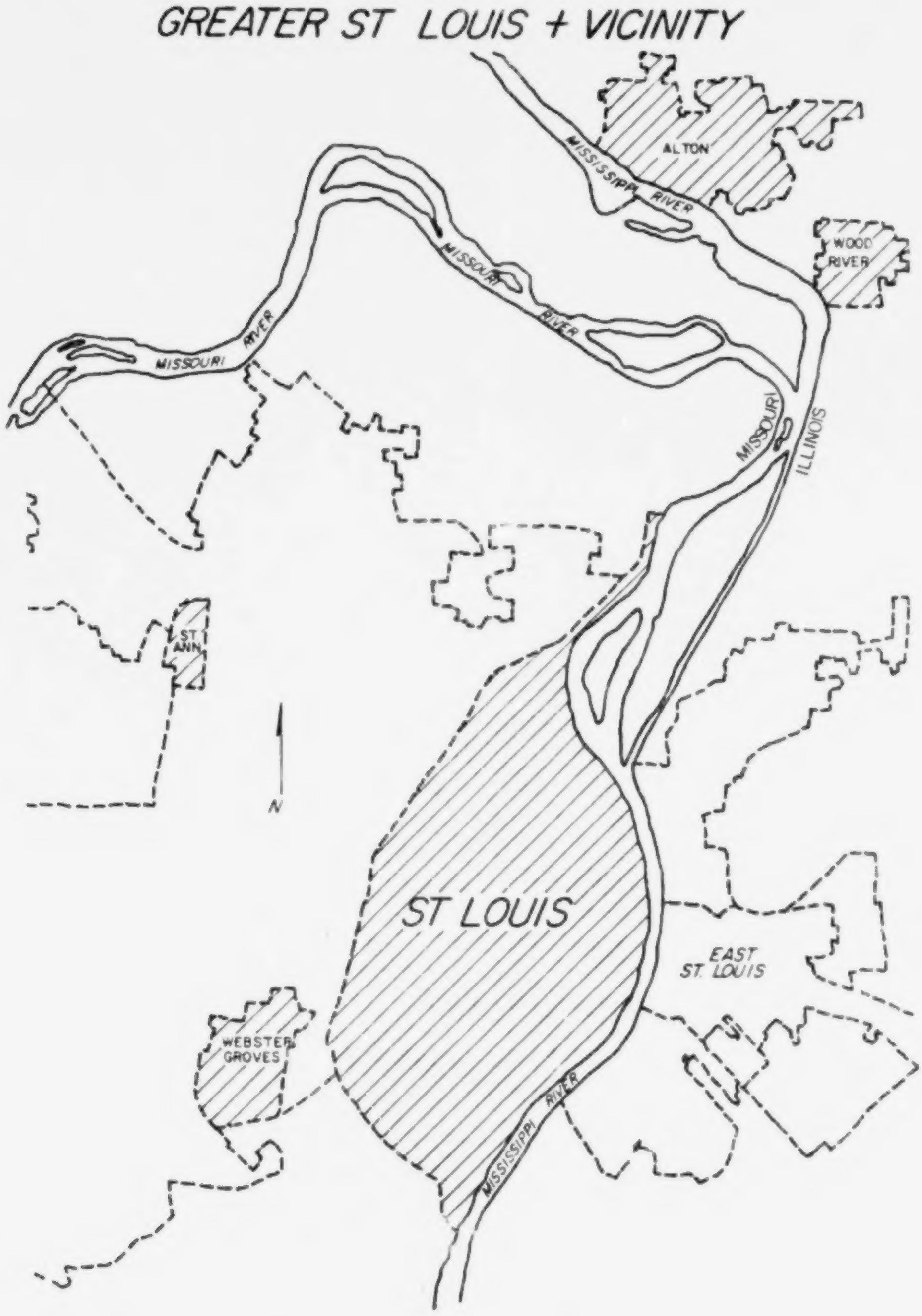

GREATER ST LOUIS + VICINITY
ALTON
MISSISSIPPI RIVER
WOOD RIVER
MISSOURI RIVER
MISSOURI RIVER
MISSOURI
ILLINOIS
ST ANN
N
ST LOUIS
EAST ST. LOUIS
WEBSTER GROVES
MISSISSIPPI RIVER

Figure C16. Sampling sites in St. Louis and vicinity.

EPA REGION IV

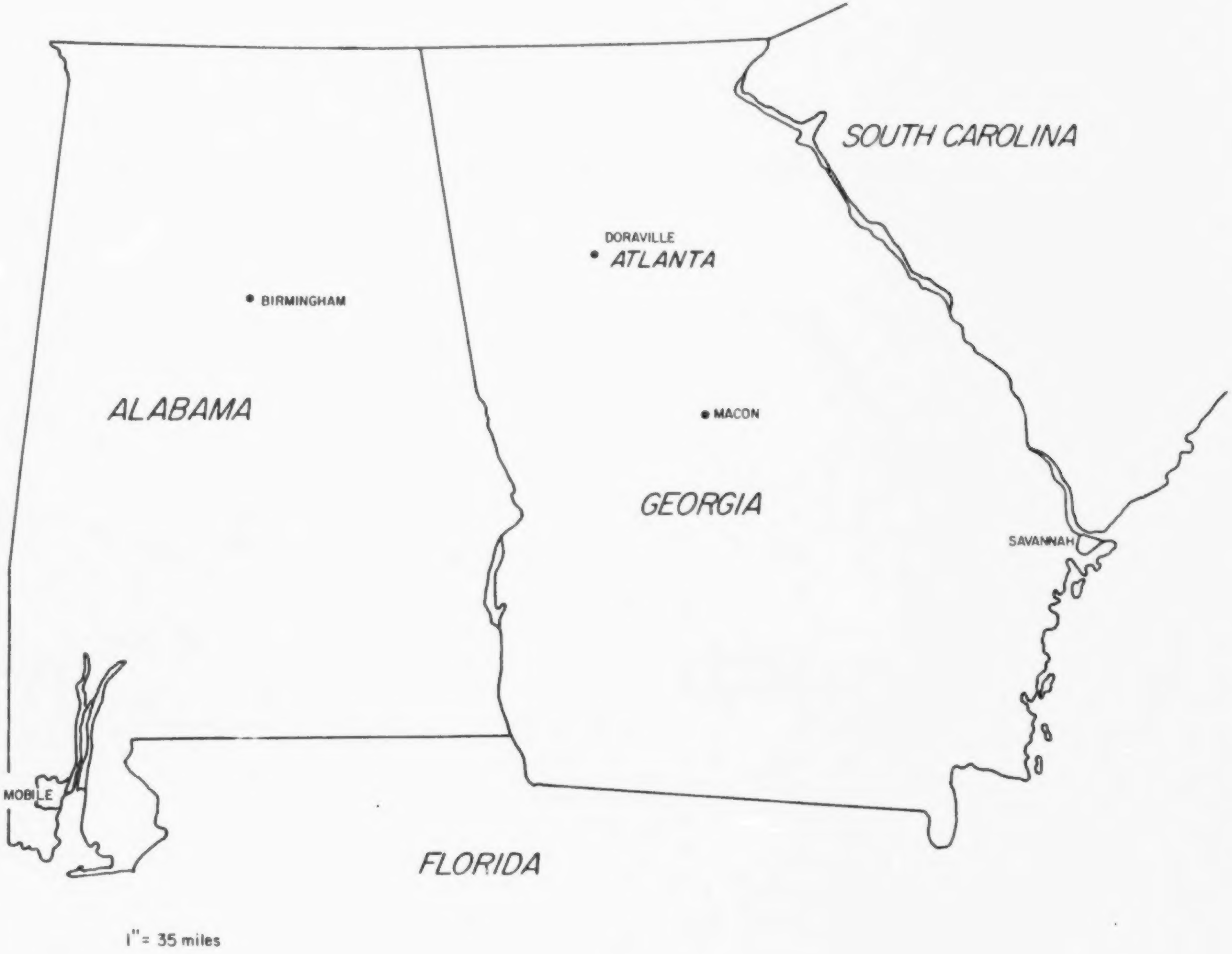

SOUTH CAROLINA
DORAVILLE
ATLANTA
BIRMINGHAM
ALABAMA
MACON
GEORGIA
SAVANNAH
MOBILE
FLORIDA
1" = 35 miles

Figure C17. Sampling sites in Southern states (solid circles).

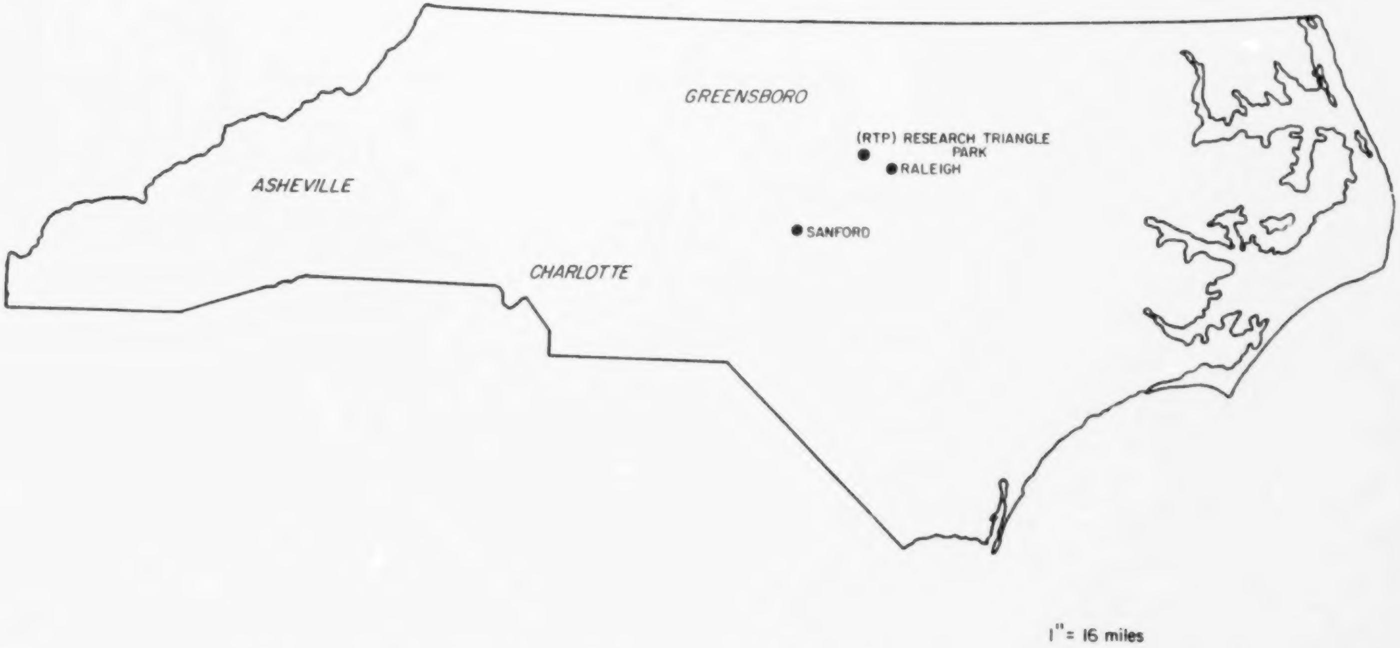

GREENSBORO
(RTP) RESEARCH TRIANGLE PARK
RALEIGH
ASHEVILLE
SANFORD
CHARLOTTE
1" = 16 miles

Figure C18. Sampling sites visited in North Carolina (solid circles).

EPA REGION III

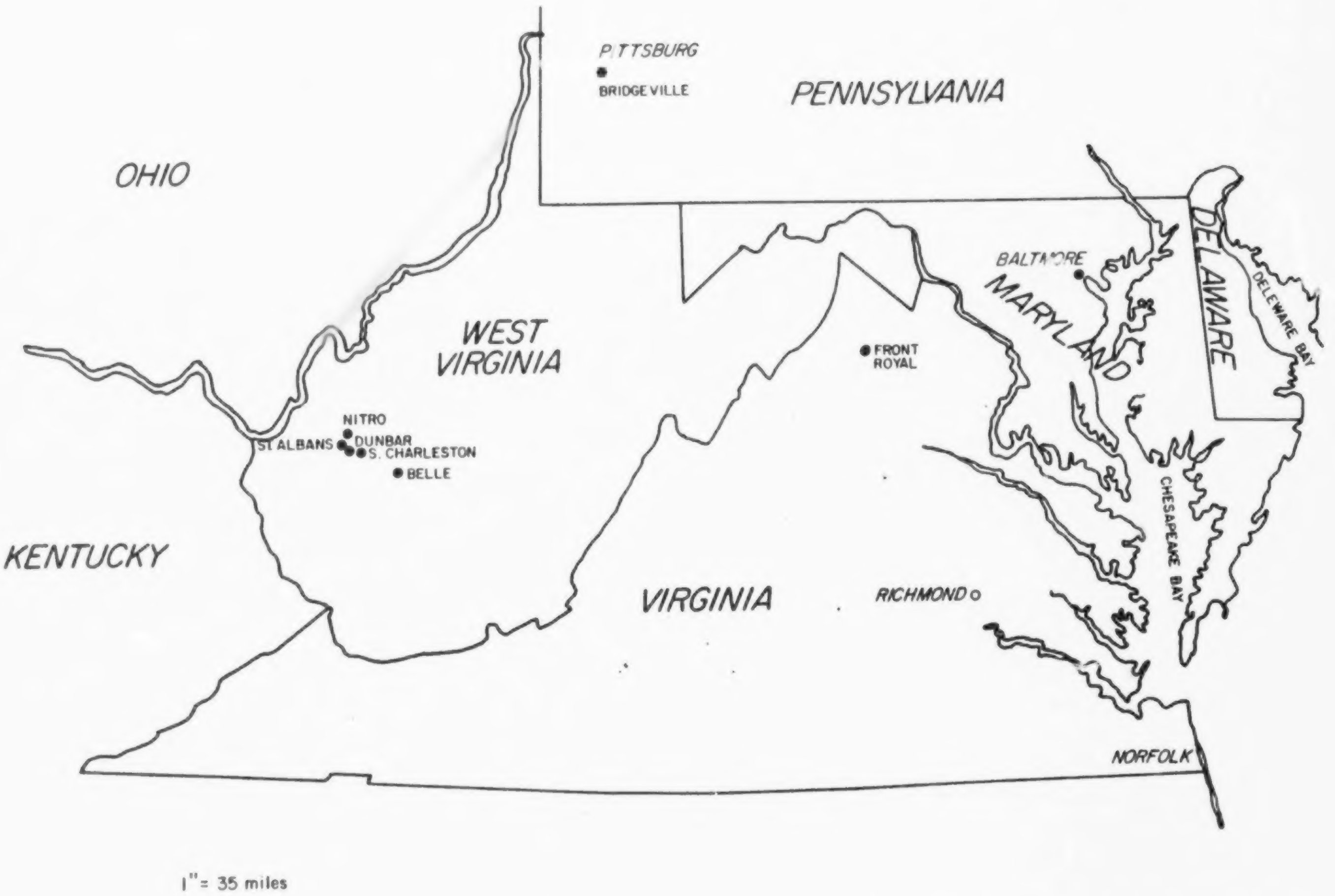

OHIO
PITTSBURG
BRIDGEVILLE
PENNSYLVANIA
WEST VIRGINIA
NITRO
ST ALBANS
DUNBAR
S. CHARLESTON
BELLE
KENTUCKY
VIRGINIA
FRONT ROYAL
RICHMOND
BALTIMORE
MARYLAND
DELAWARE
DELEWARE BAY
CHESAPEAKE BAY
NORFOLK
1" = 35 miles

Figure C19. Sampling sites in West Virginia, Virginia and Maryland (solid circles).

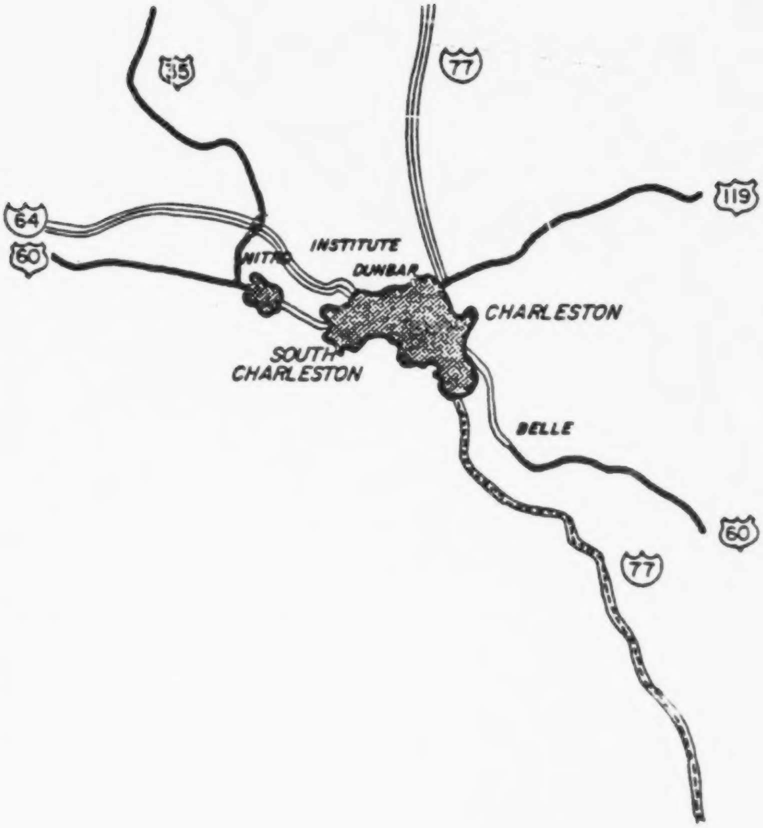

35
77
119
64
60
NITRO
INSTITUTE
DUNBAR
CHARLESTON
SOUTH CHARLESTON
BELLE
60
77

Figure C20. Perspective map of the Kanawha Valley in West Virginia.

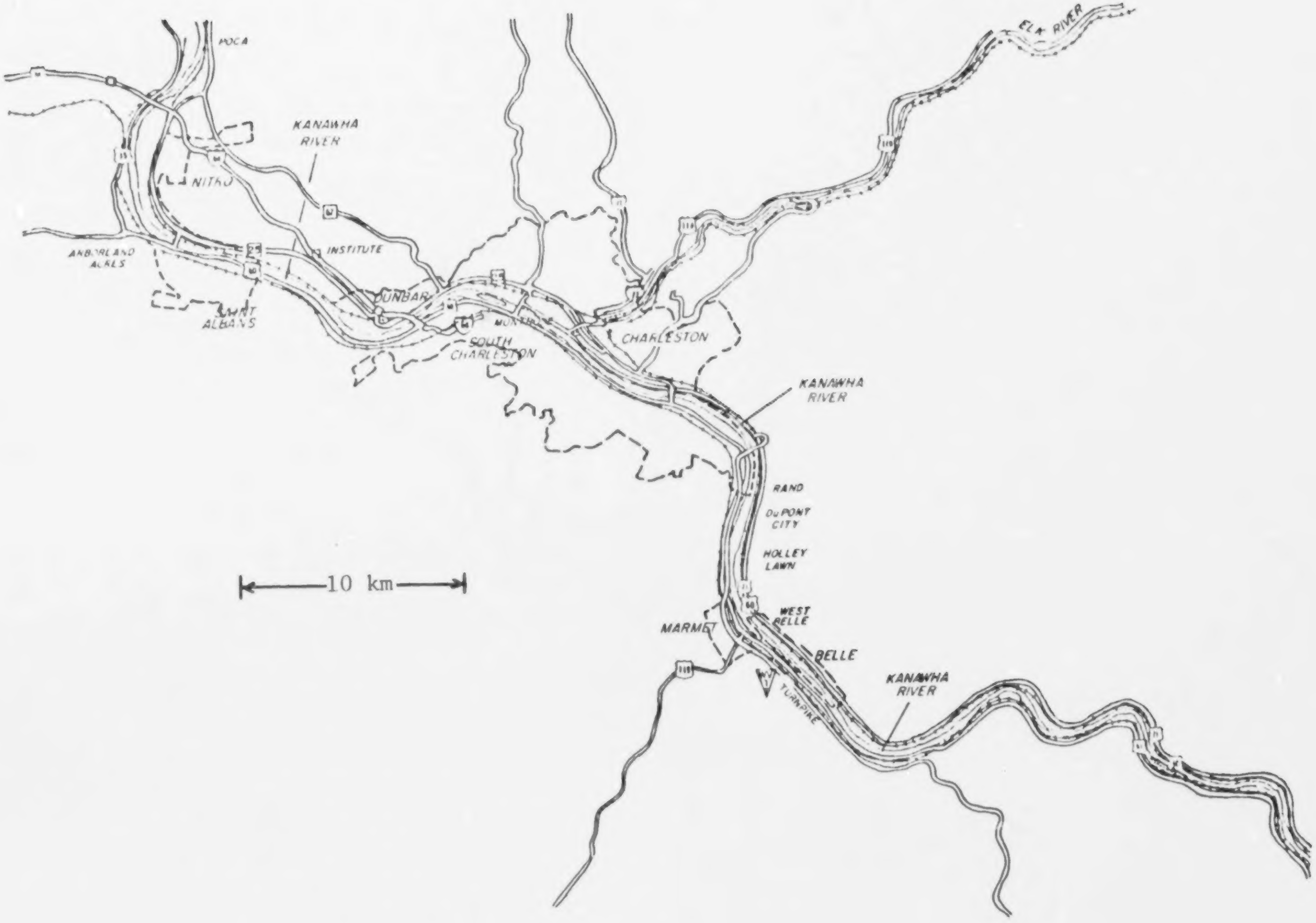

POCA
KANAWHA RIVER
NITRO
ANBORLAND ACRES
SAINT ALBANS
INSTITUTE
DUNBAR
SOUTH CHARLESTON
CHARLESTON
ELK RIVER
KANAWHA RIVER
RAND
DuPONT CITY
HOLLEY LAWN
WEST BELLE
BELLE
MARMET
TURNPIKE
KANAWHA RIVER
10 km

Figure C21. The Kanawha River Valley, West Virginia.

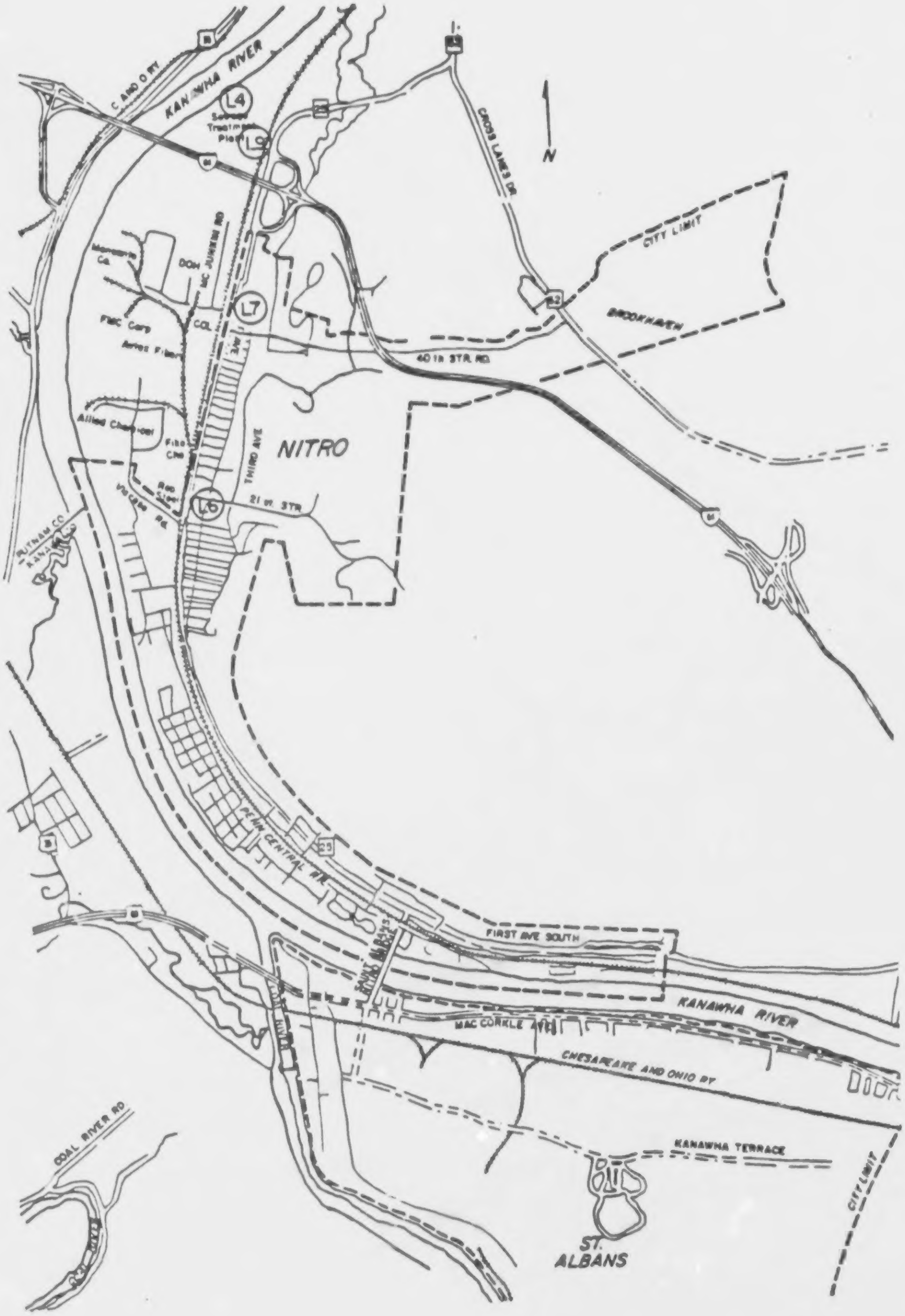

C AND O RY
KANAWHA RIVER
L4
Sewage Treatment Plant
L9
CROSS LANES DR
N
CITY LIMIT
BROOKHAVEN
Monsanto Co.
DOH
MC JUNKIN RD
L7
FMC Corp
COL
Avtex Fibers
40th STR RD
Allied Chemical
Fike Chem
NITRO
THIRD AVE
L6
21st STR
PUTNAM CO
KANAWHA CO
PENN CENTRAL RR
25
FIRST AVE SOUTH
KANAWHA RIVER
MAC CORKLE AVE
CHESAPEAKE AND OHIO RY
KANAWHA TERRACE
CITY LIMIT
COAL RIVER RD
ST. ALBANS

Figure C22. Map of area around Nitro, WV, showing sampling locations.

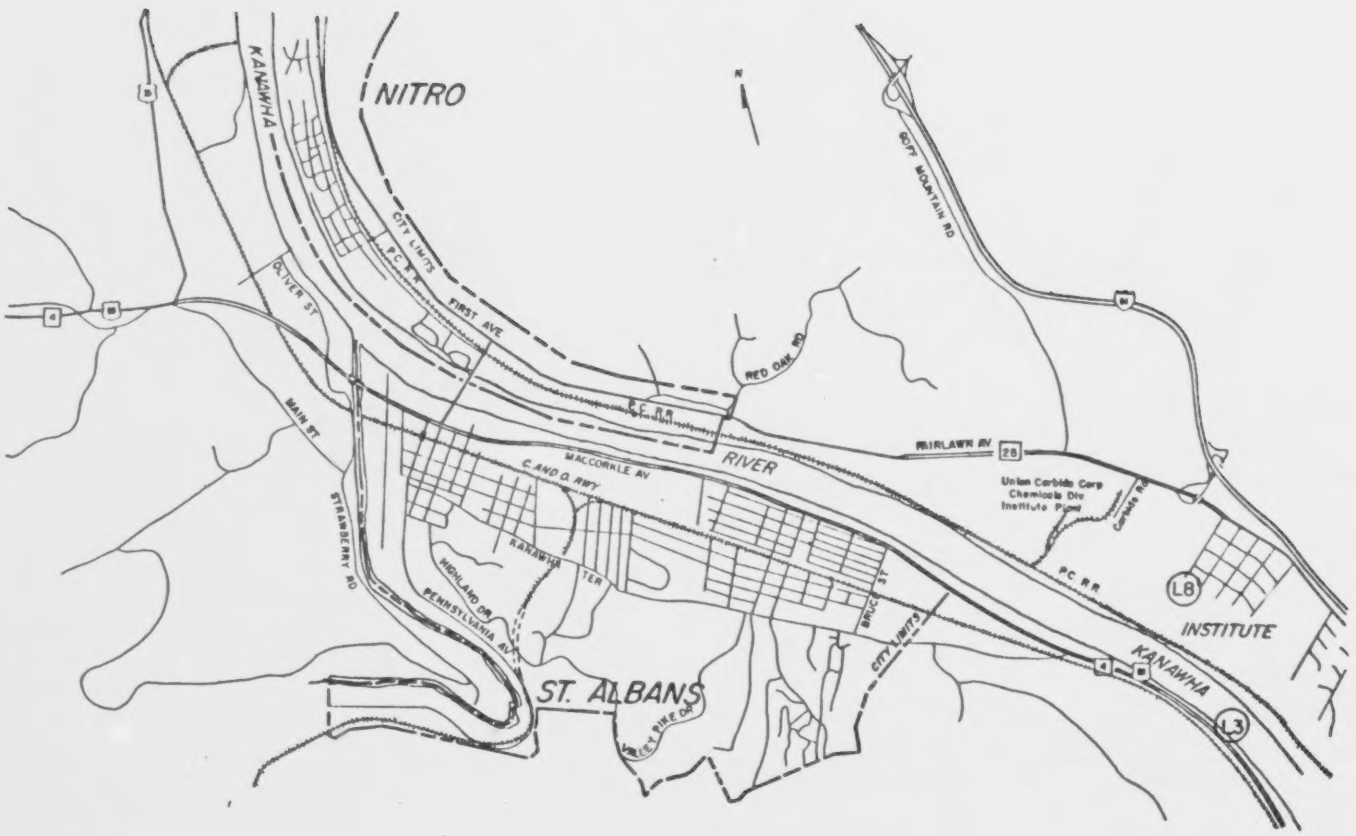
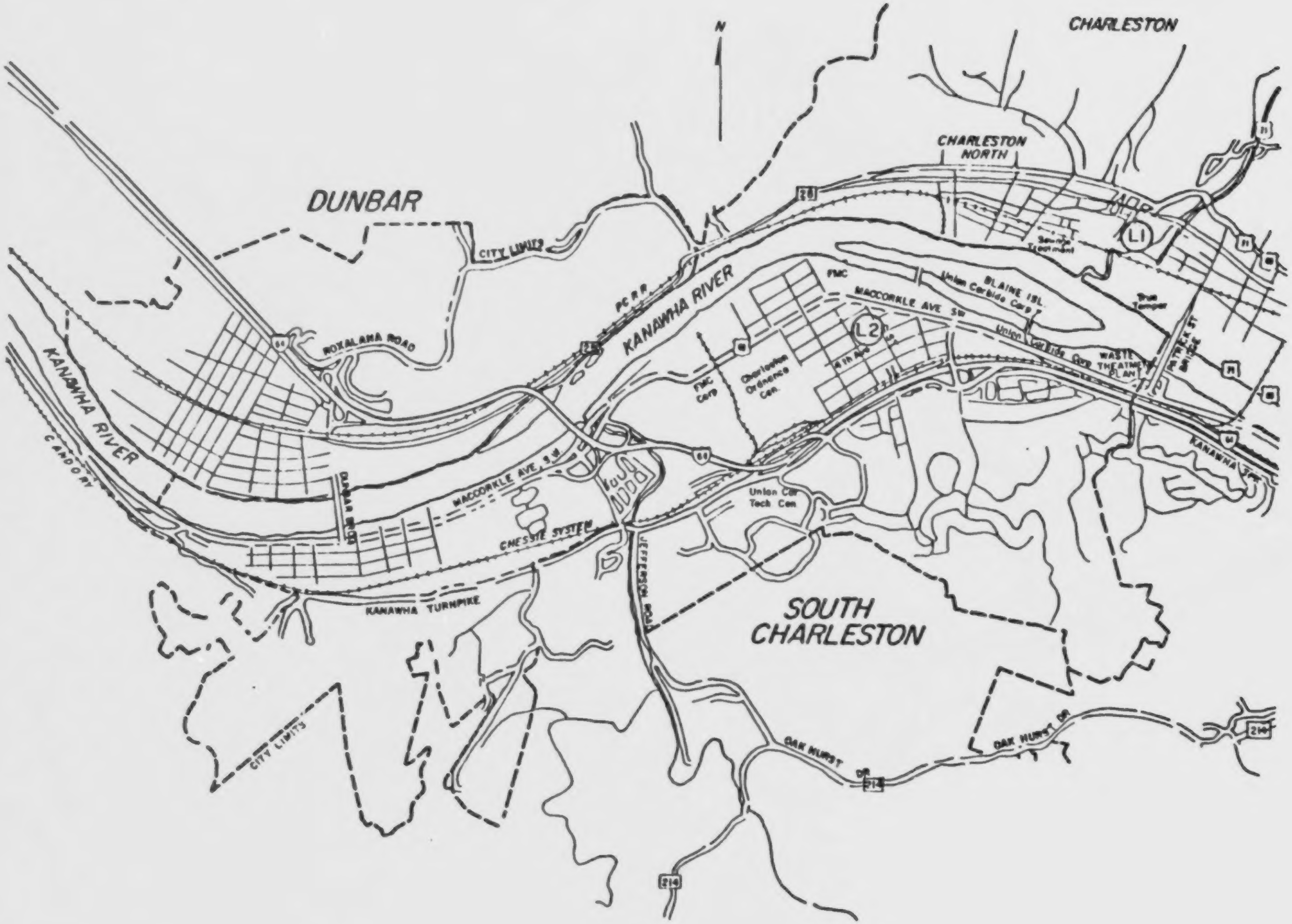
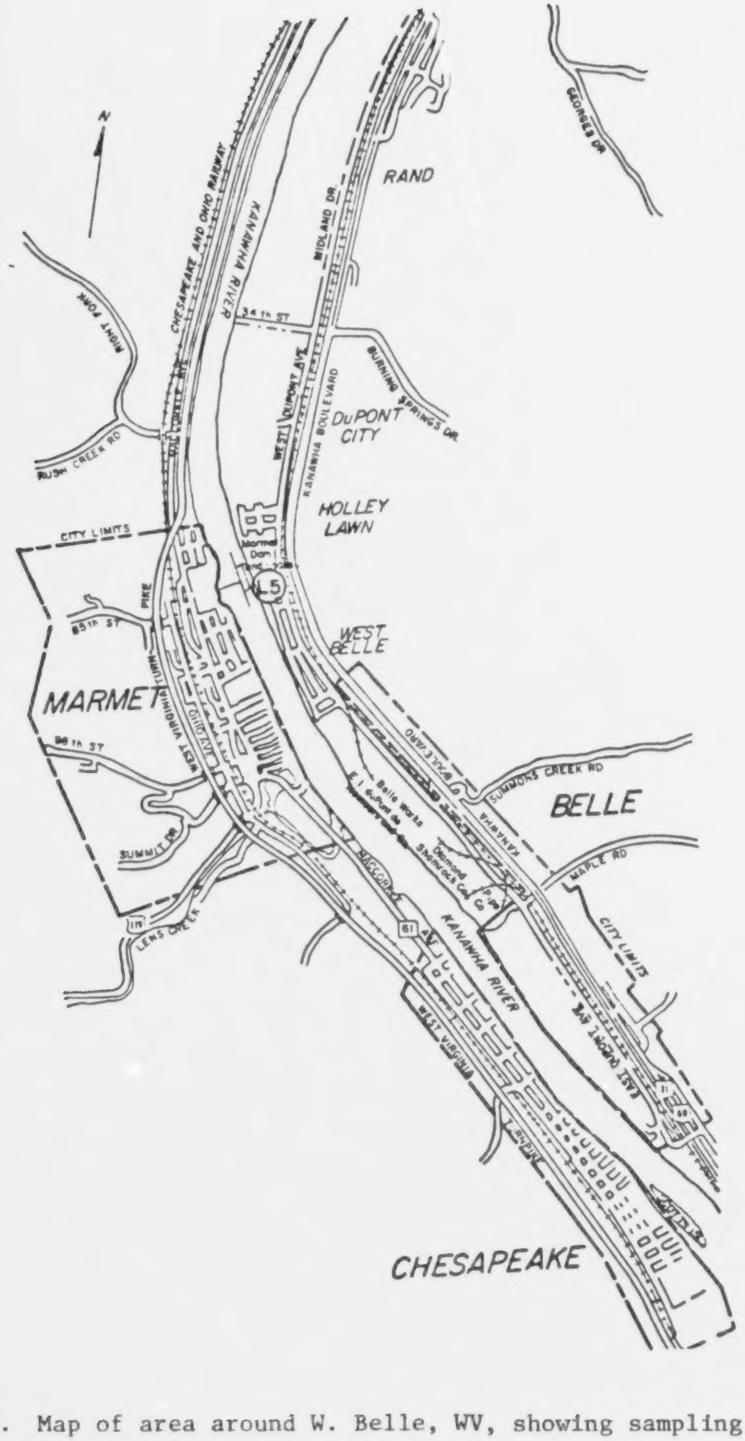

NITRO
KANAWHA
CITY LIMITS
P.C. R.R.
FIRST AVE
OLIVER ST
MAIN ST
STRAWBERRY RD
RED OAK RD
GOFF MOUNTAIN RD
P.C. R.R.
FAIRLAWN AV
28
RIVER
MACCORKLE AV
C. AND O. RWY
KANAWHA TER
HIGHLAND DR.
PENNSYLVANIA AV
ST. ALBANS
VALLEY PIKE DR
BRUCE ST
CITY LIMITS
Union Carbide Corp
Chemicals Div
Institute Plant
Carbide Rd
P.C. R.R.
L8
INSTITUTE
KANAWHA
L3
N

Figure C23. Map of area around St. Albans and Institute, WV, showing sampling locations.



N
CHARLESTON
CHARLESTON NORTH
DUNBAR
CITY LIMITS
L1
L2
Sewage Treatment
BLAINE ISL.
Union Carbide Corp
FMC
MACCORKLE AVE SW
Union Carbide Corp
WASTE TREATMENT PLANT
PATRICK ST BRIDGE
4th Ave
KANAWHA RIVER
P.C.R.R.
ROXALANA ROAD
Charleston Ordnance Cen.
FMC Corp
64
21
60
119
25
KANAWHA TPK
Union Car Tech Cen
MACCORKLE AVE, S.W.
CHESSIE SYSTEM
DUNBAR BRIDGE
JEFFERSON ROAD
KANAWHA TURNPIKE
SOUTH CHARLESTON
OAK HURST DR
214
KANAWHA RIVER
C AND O RY
CITY LIMITS

Figure C24. Map of area around Charleston and South Charleston, WV, showing sampling locations.



N
GEORGES DR
RAND
CHESAPEAKE AND OHIO RAILWAY
KANAWHA RIVER
MIDLAND DR
RIGHT FORK
34th ST
BURNING SPRINGS DR
WEST DUPONT AVE
KANAWHA BOULEVARD
DuPONT CITY
RUSH CREEK RD
HOLLEY LAWN
CITY LIMITS
Marmet Dam
L5
85th ST
PIKE
WEST BELLE
MARMET
WEST VIRGINIA TURNPIKE
96th ST
BOULEVARD
SUMMONS CREEK RD
BELLE
E I DuPont Co Belle Works
Diamond Shamrock Co
KANAWHA
SUMMIT DR
MACCORKLE
MAPLE RD
119
LENS CREEK
61
AVE
KANAWHA RIVER
CITY LIMITS
EAST DUPONT AVE
WEST VIRGINIA TURNPIKE
CHESAPEAKE

Figure C25. Map of area around W. Belle, WV, showing sampling locations.

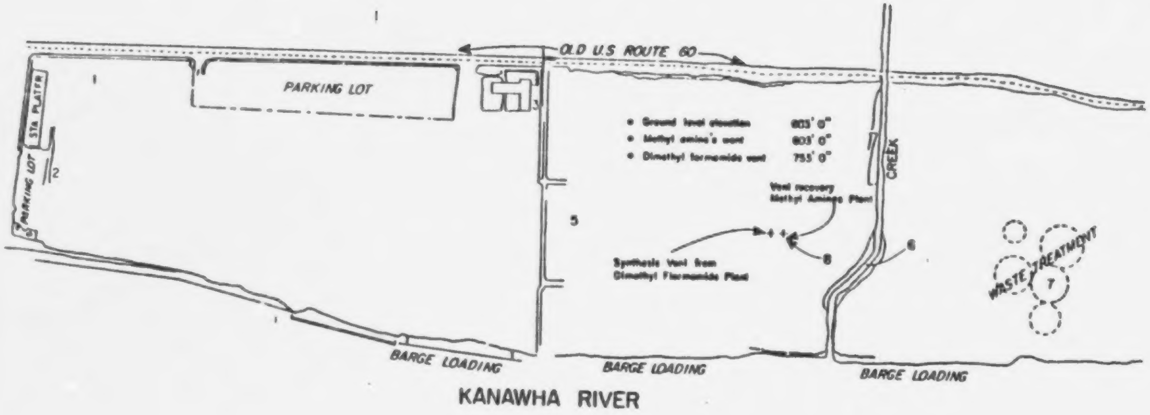

OLD U.S ROUTE 60
PARKING LOT
STA PLATFR
PARKING LOT
1
1
1
2
3
5
6
7
8
• Ground level elevation 603' 0"
• Methyl amine's vent 803' 0"
• Dimethyl formamide vent 753' 0"
Vent recovery Methyl Amines Plant
Synthesis Vent from Dimethyl Formamide Plant
CREEK
WASTE TREATMENT
BARGE LOADING
BARGE LOADING
BARGE LOADING
KANAWHA RIVER

Figure C26. Plant map of DuPont in Belle, WV, depicting sampling locations.

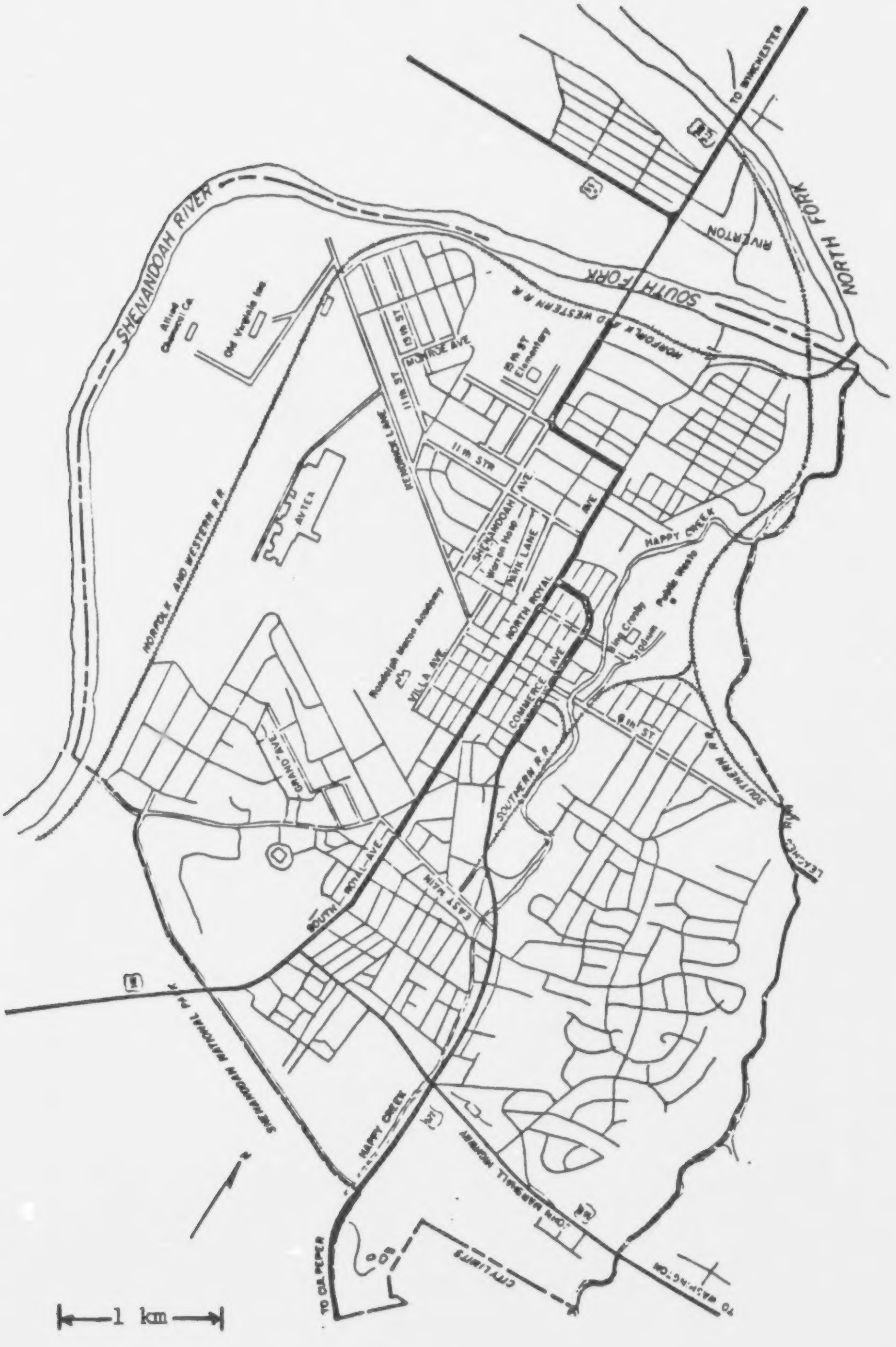

TO WINCHESTER
340
522
RIVERTON
NORTH FORK
SOUTH FORK
SHENANDOAH RIVER
NORFOLK AND WESTERN R.R.
Allied Chemical Co
Old Virginia Inc
15th ST
MONROE AVE
11th ST
15th ST Elementary
PEYMOUTH LANE
11th STR
AVTEX
SHENANDOAH AVE
Warren Hosp
PARK LANE
AVE
HAPPY CREEK
Public Works
Bing Crosby Stadium
NORTH ROYAL
Randolph Macon Academy
VILLA AVE
COMMERCE AVE
8th ST
SOUTHERN R.R.
SOUTHERN R.R.
GRAND AVE
SOUTH ROYAL AVE
EAST MAIN
LEACH RUN PKWY
55
SHENANDOAH NATIONAL PK
HAPPY CREEK
340
JOHN MARSHALL HIGHWAY
55
N
TO CULPEPER
CITY LIMITS
TO WASHINGTON
1 km

Figure C27. Front Royal, VA.

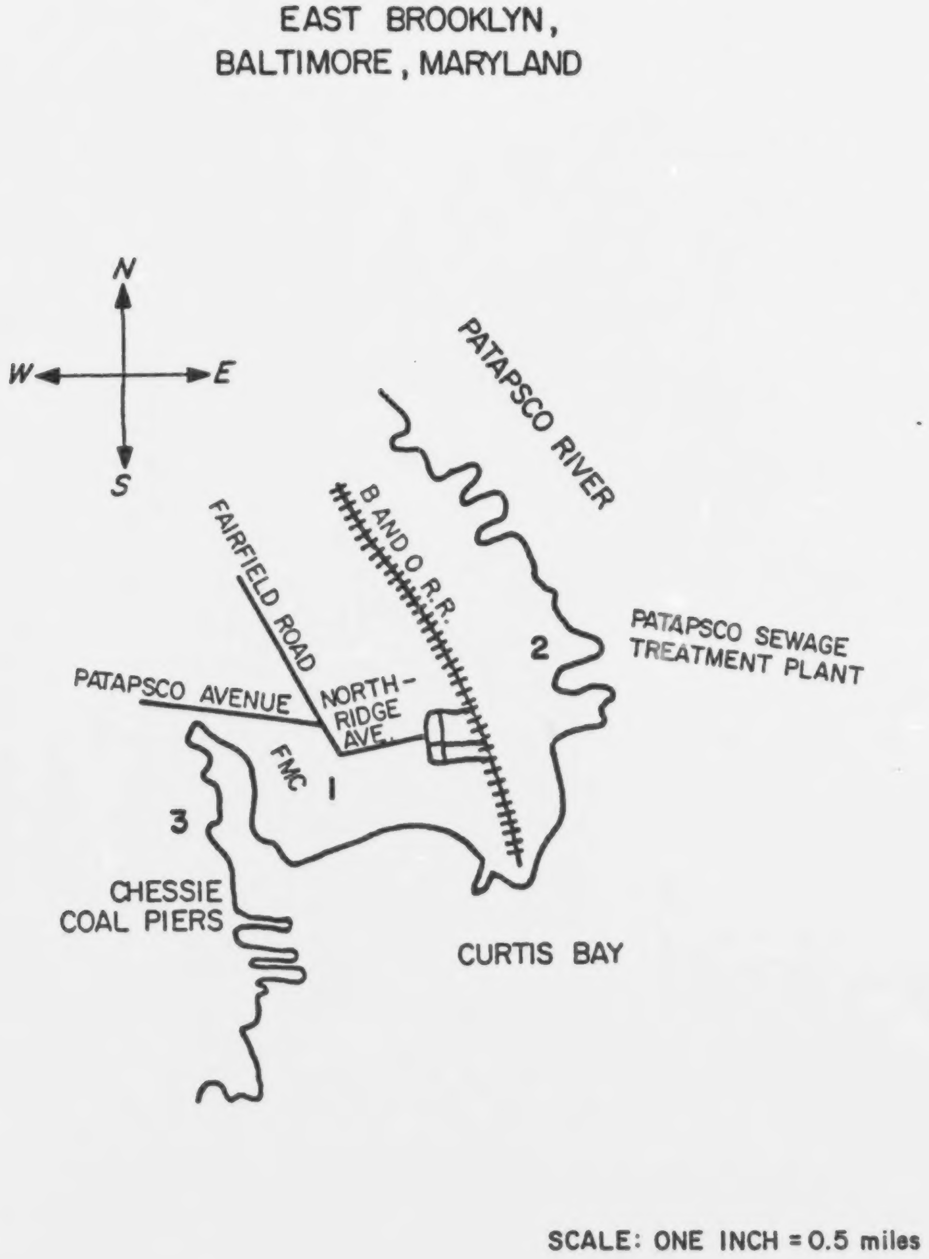

EAST BROOKLYN,
BALTIMORE, MARYLAND
N
W
E
S
PATAPSCO RIVER
B AND O R.R.
FAIRFIELD ROAD
PATAPSCO AVENUE
NORTH-RIDGE AVE.
PATAPSCO SEWAGE TREATMENT PLANT
2
FMC
1
3
CHESSIE COAL PIERS
CURTIS BAY
SCALE: ONE INCH = 0.5 miles

Figure C28. Map of sampling site in East Brooklyn, Baltimore, Maryland.

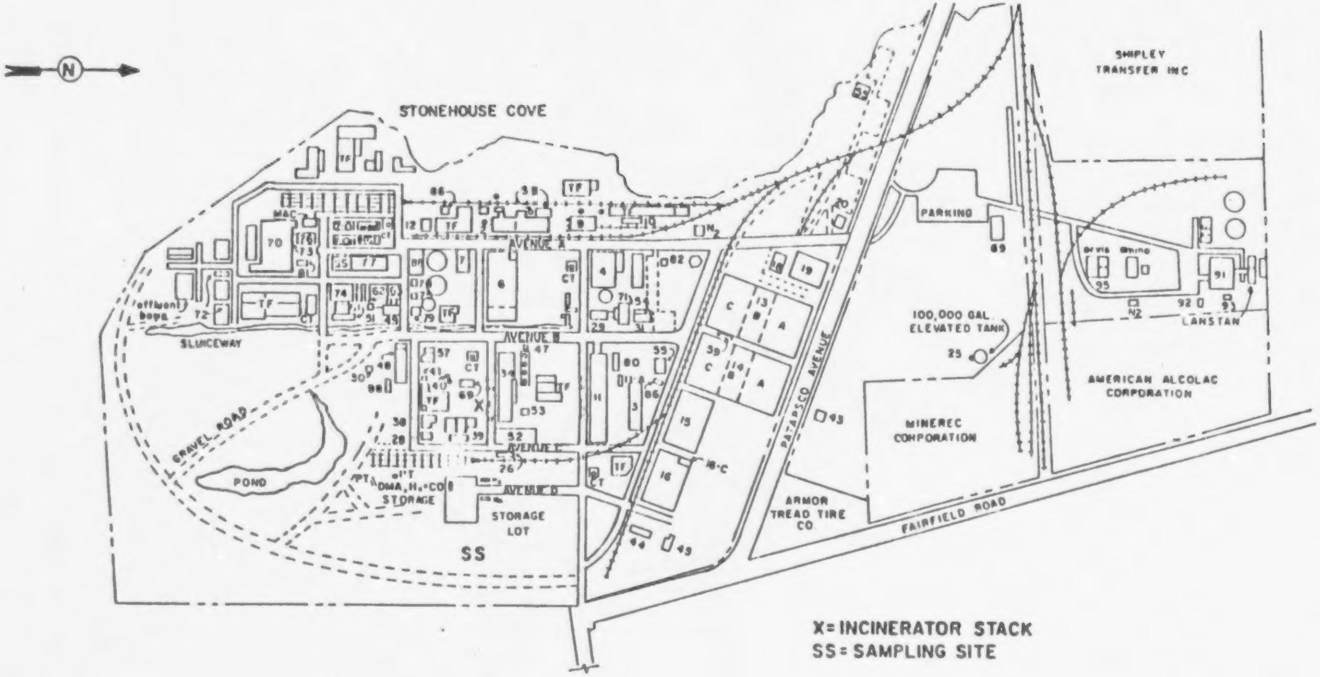

N
STONEHOUSE COVE
SHIPLEY TRANSFER INC
PARKING
100,000 GAL. ELEVATED TANK
AMERICAN ALCOLAC CORPORATION
LANSTAN
MINEREC CORPORATION
ARMOR TREAD TIRE CO.
FAIRFIELD ROAD
PATAPSCO AVENUE
AVENUE A
AVENUE B
AVENUE C
AVENUE D
SLUICEWAY
GRAVEL ROAD
POND
STORAGE LOT
SS
X
X= INCINERATOR STACK
SS= SAMPLING SITE

Figure C29. Plant map of FMC.

EPA REGION II

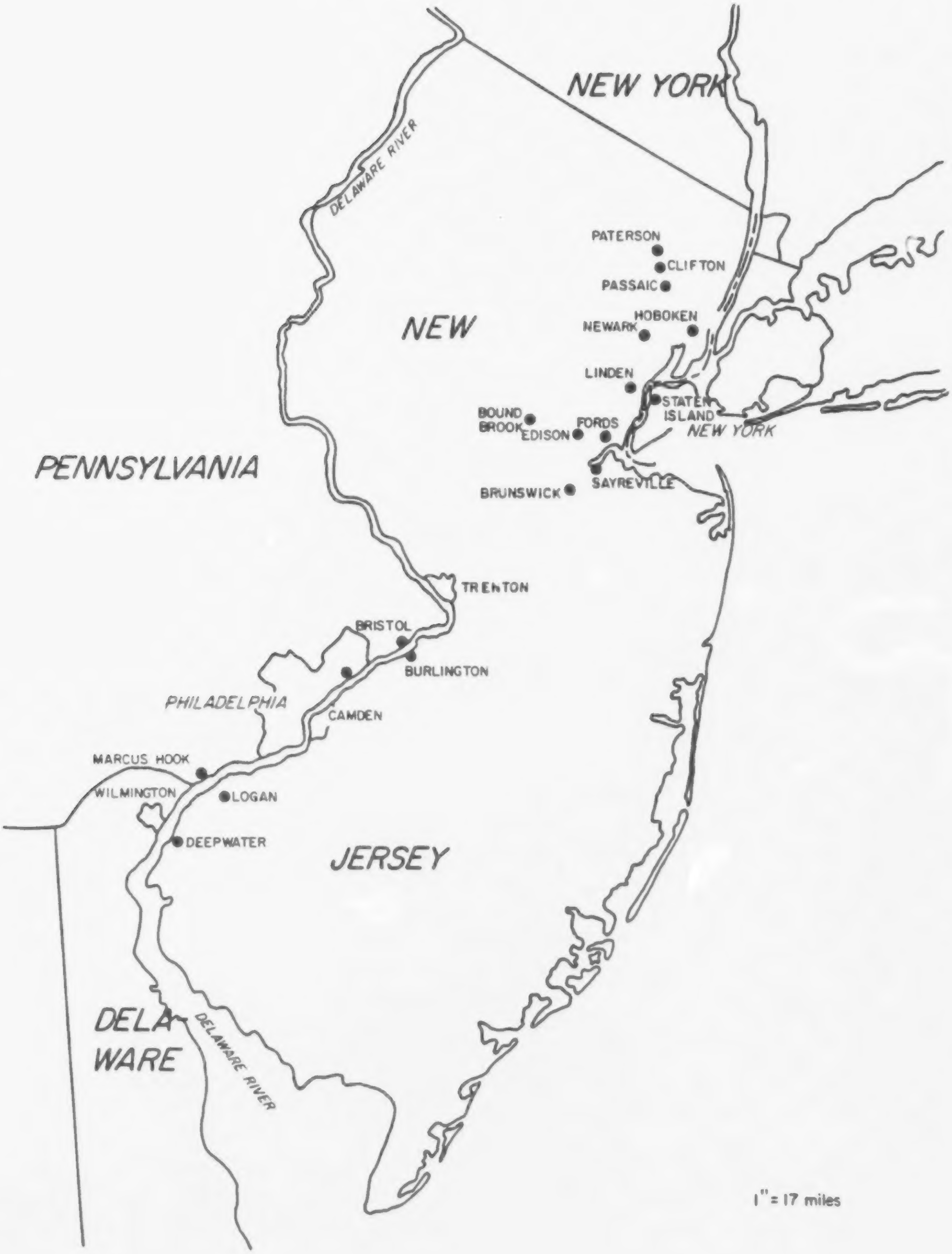

NEW YORK
DELAWARE RIVER
PATERSON
CLIFTON
PASSAIC
HOBOKEN
NEWARK
NEW
LINDEN
STATEN ISLAND
BOUND BROOK
EDISON
FORDS
NEW YORK
PENNSYLVANIA
BRUNSWICK
SAYREVILLE
TRENTON
BRISTOL
BURLINGTON
PHILADELPHIA
CAMDEN
MARCUS HOOK
WILMINGTON
LOGAN
DEEPWATER
JERSEY
DELAWARE
DELAWARE RIVER
1" = 17 miles

Figure C30. Sampling sites in New Jersey (solid circles).

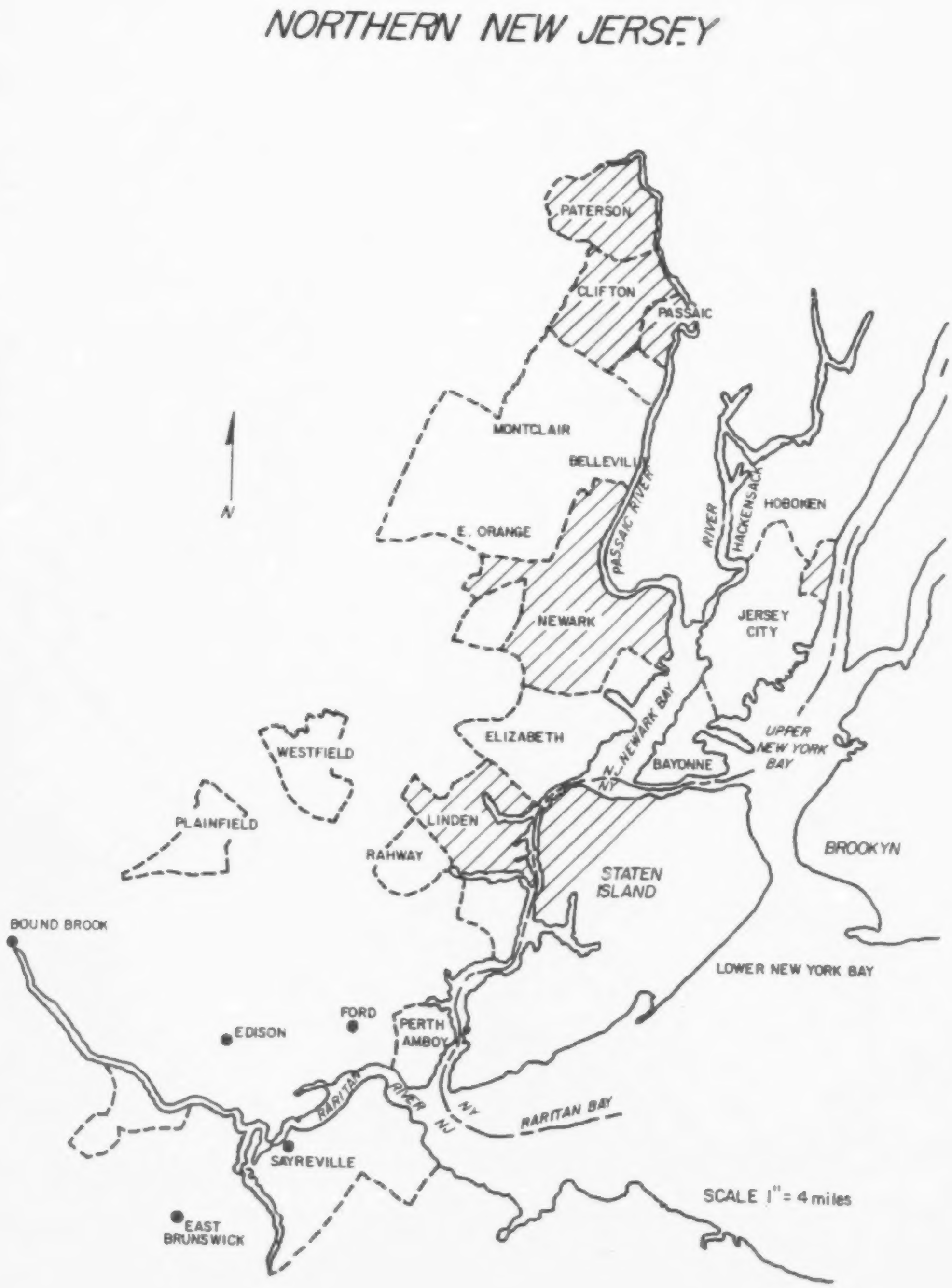
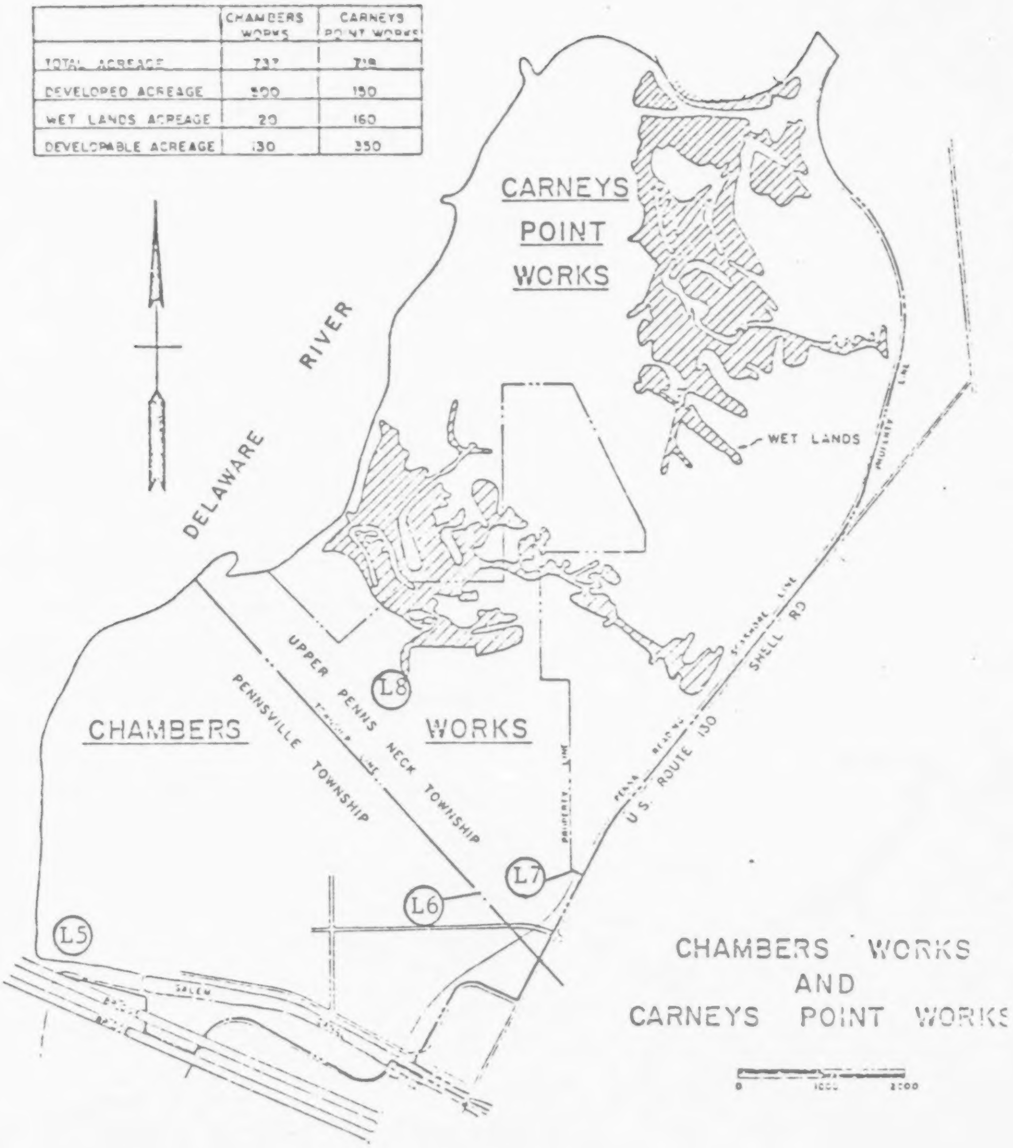

NORTHERN NEW JERSEY
PATERSON
CLIFTON
PASSAIC
MONTCLAIR
BELLEVILLE
E. ORANGE
PASSAIC RIVER
HACKENSACK RIVER
HOBOKEN
JERSEY CITY
NEWARK
N
ELIZABETH
NEWARK BAY
NJ
NY
BAYONNE
UPPER NEW YORK BAY
WESTFIELD
PLAINFIELD
LINDEN
RAHWAY
BROOKYN
STATEN ISLAND
BOUND BROOK
LOWER NEW YORK BAY
FORD
EDISON
PERTH AMBOY
RARITAN RIVER
NY
NJ
RARITAN BAY
SAYREVILLE
SCALE 1" = 4 miles
EAST BRUNSWICK

Figure C31. Sampling sites in Northeast New Jersey (solid circles).



	CHAMBERS WORKS	CARNEYS POINT WORKS
TOTAL ACREAGE	737	719
DEVELOPED ACREAGE	300	150
WET LANDS ACREAGE	20	160
DEVELOPABLE ACREAGE	130	350

CARNEYS POINT WORKS
DELAWARE RIVER
WET LANDS
CHAMBERS WORKS
UPPER PENNS NECK TOWNSHIP
PENNSVILLE TOWNSHIP
PROPERTY LINE
U.S. ROUTE 130
SHELL RD
L5
L6
L7
L8
SALEM
CHAMBERS WORKS AND CARNEYS POINT WORKS
0
1000
2000

Figure C32. Location of E. I. DuPont de Nemours in Deepwater, NJ.

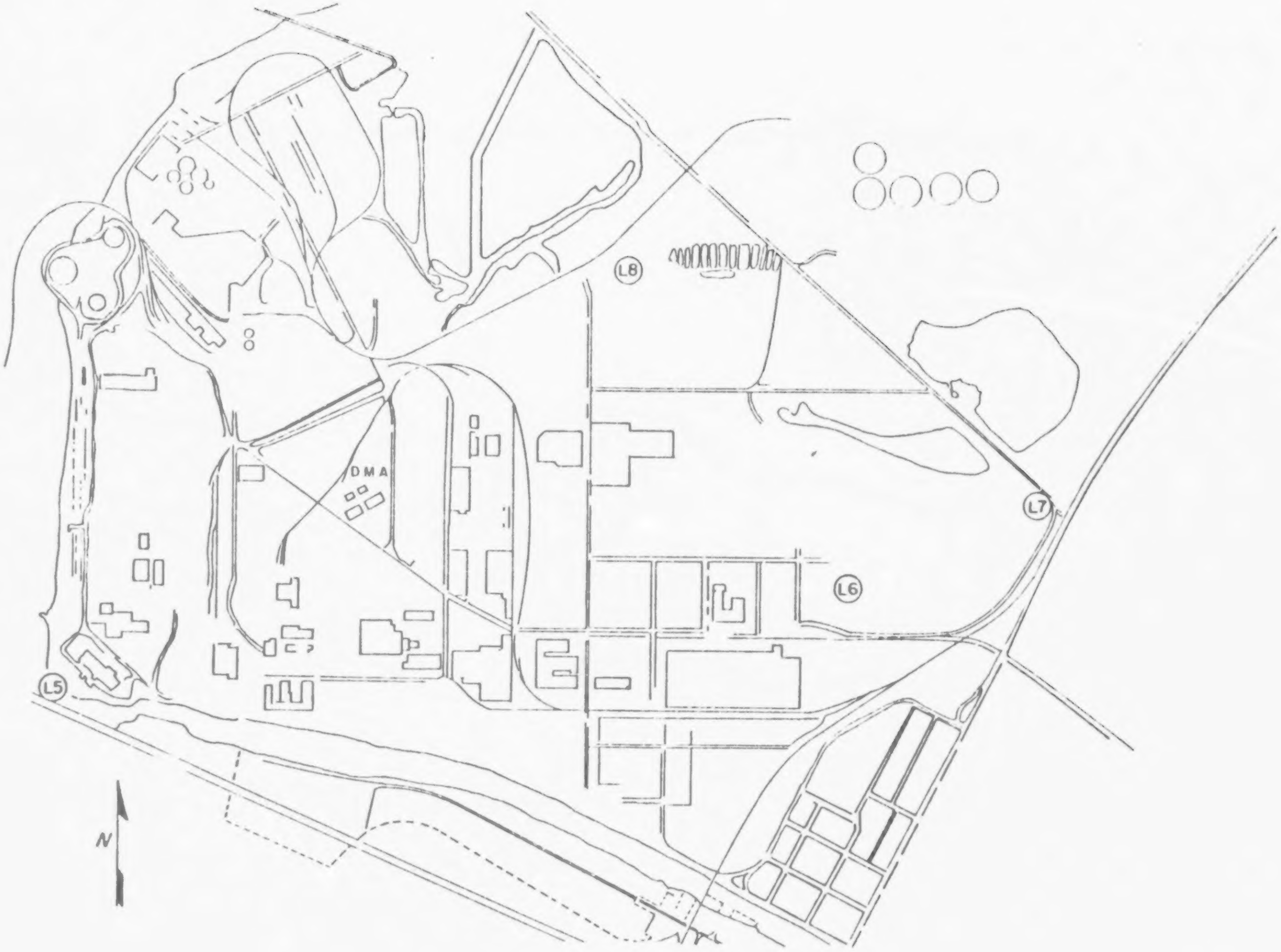

L8
L7
L6
L5
DMA
N

Figure C33. Sampling locations on E. I. DuPont de Nemours plant site.

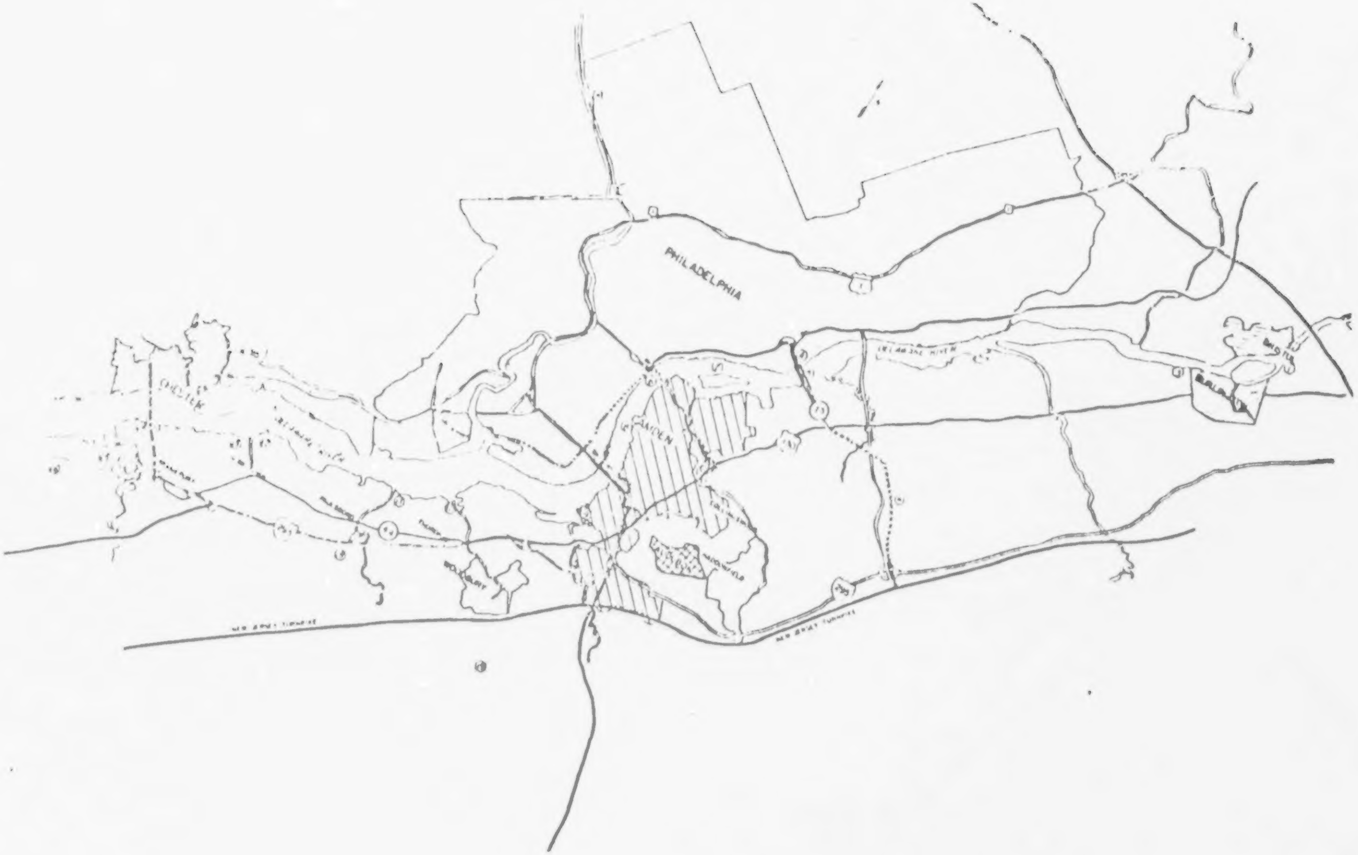

PHILADELPHIA
CAMDEN
CHESTER
DELAWARE RIVER
NEW JERSEY TURNPIKE

Figure C34. Map of Chester, Camden, Philadelphia areas along the Delaware River.

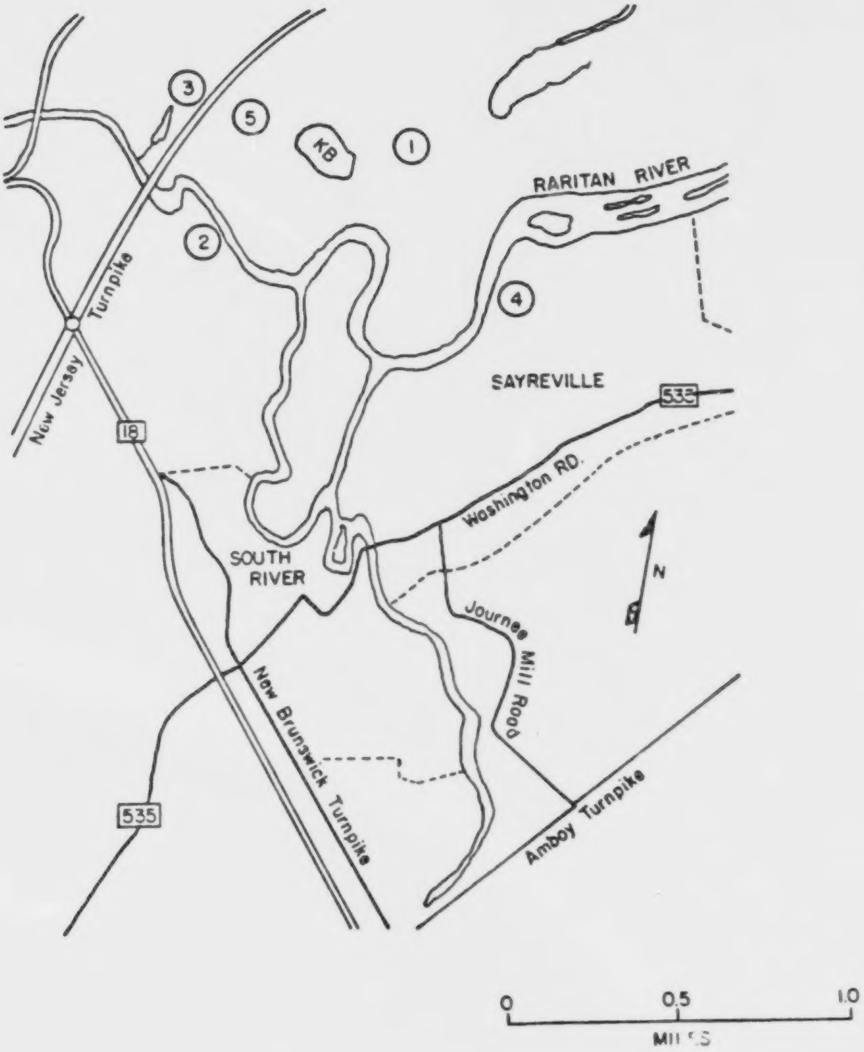

3
5
KB
1
RARITAN RIVER
2
4
New Jersey Turnpike
SAYREVILLE
535
18
Washington RD.
SOUTH RIVER
N
Journee Mill Road
New Brunswick Turnpike
535
Amboy Turnpike
0
0.5
1.0
MILES

Figure C35. Sampling locations surrounding Kin-Buc Land-fill, Edison, NJ.

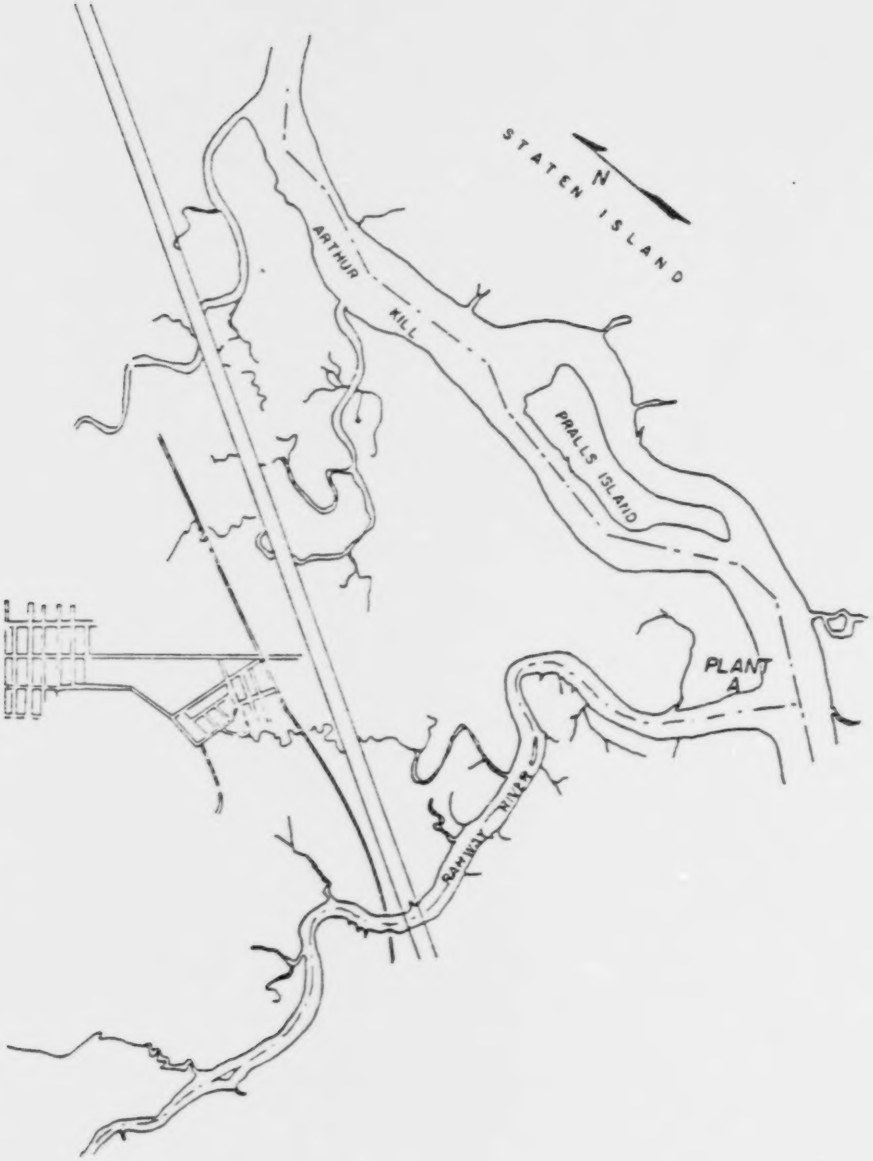

STATEN ISLAND
N
ARTHUR KILL
PRALLS ISLAND
PLANT A
RAHWAY RIVER

Figure C36. General location of American Cyanamid Corp. with respect to Tremley's Point and Staten Island.

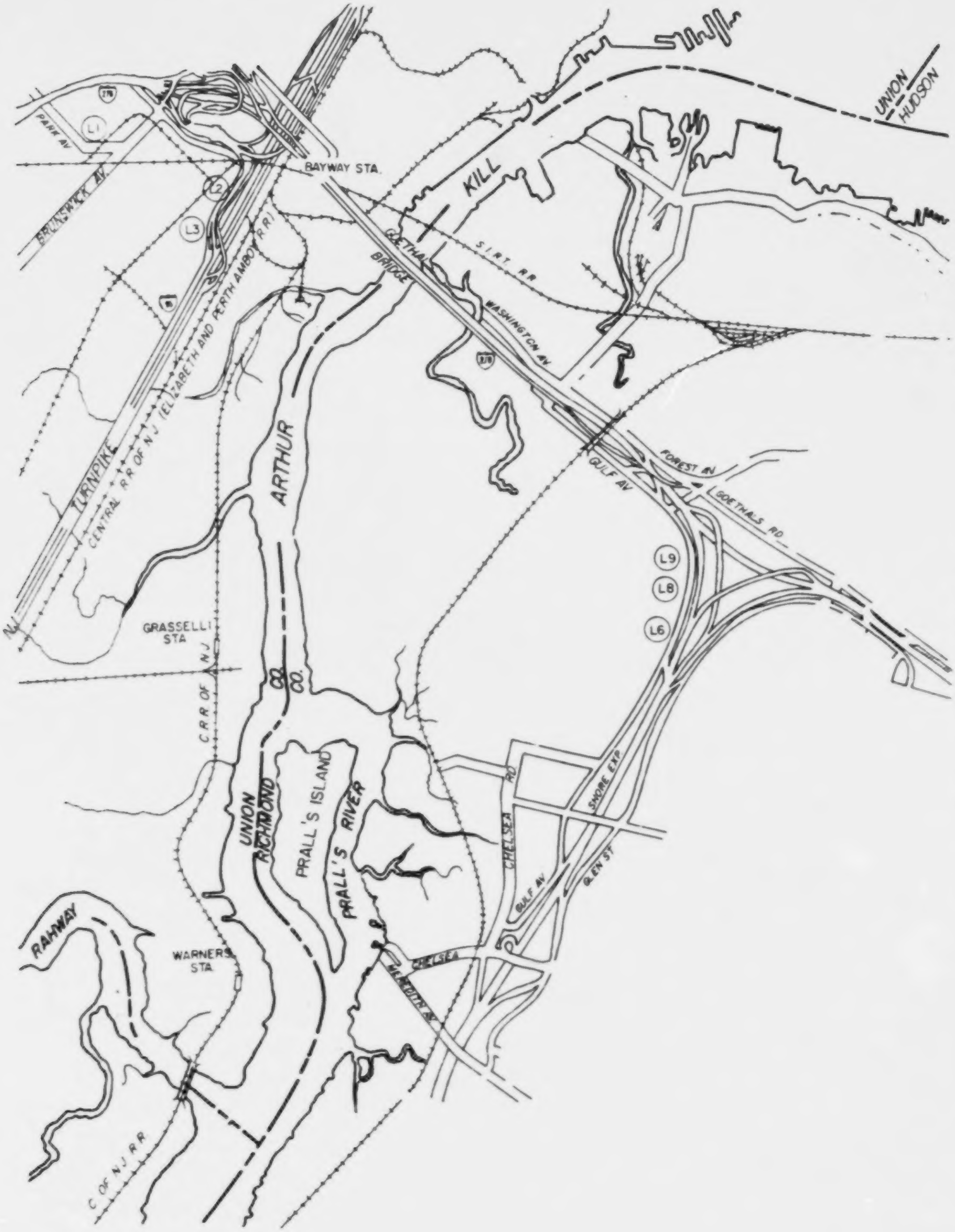
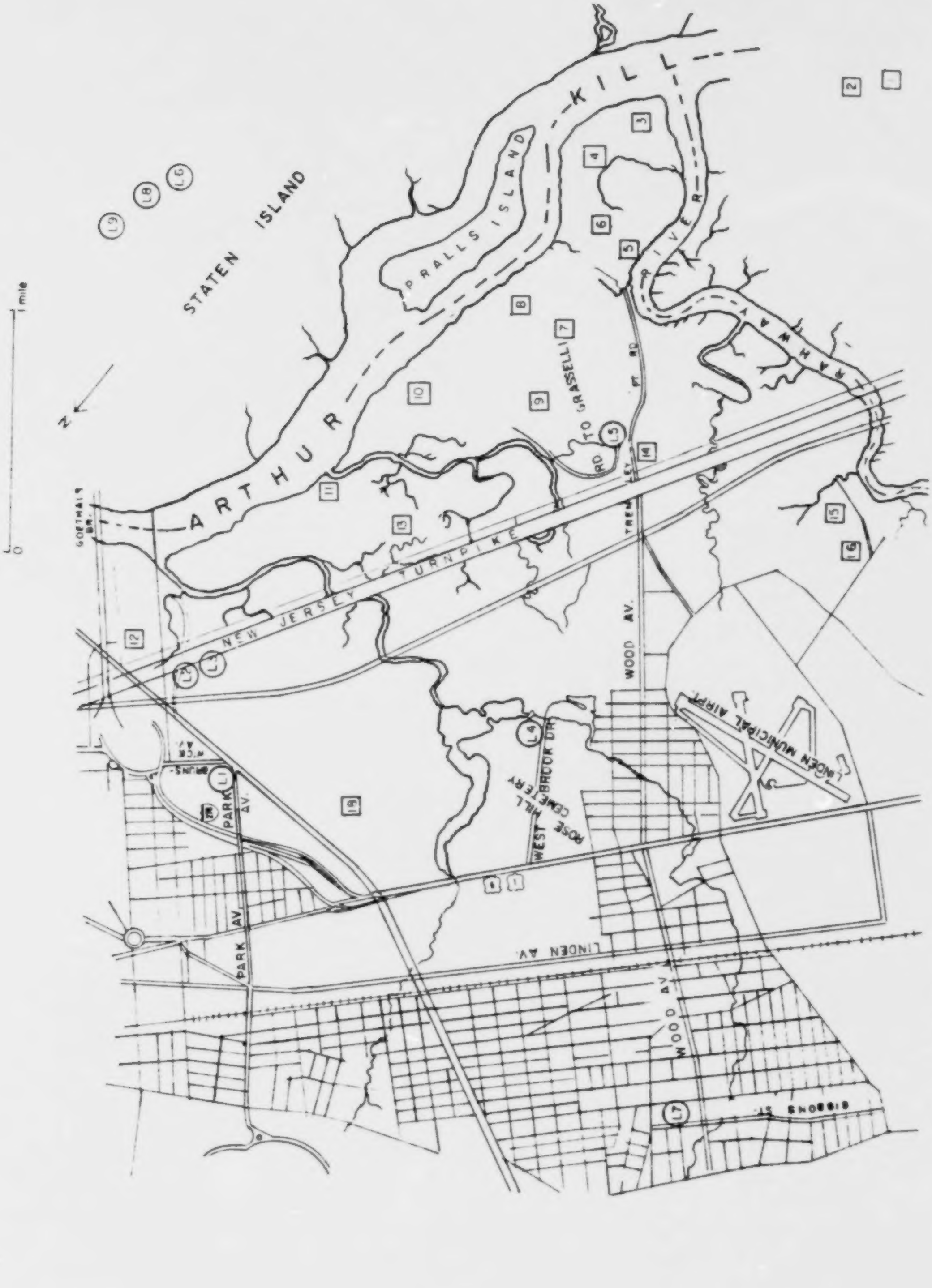

UNION
HUDSON
KILL
VAN
BAYWAY STA.
GOETHALS BRIDGE
S.I.R.T. RR
WASHINGTON AV
278
FOREST AV
GULF AV
GOETHALS RD
L9
L8
L6
L1
L2
L3
278
PARK AV
BRUNSWICK AV.
TURNPIKE
CENTRAL R.R. OF N.J. (ELIZABETH AND PERTH AMBOY R.R.)
N.J.
ARTHUR
GRASSELLI STA
C.R.R. OF N.J.
UNION
RICHMOND
PRALL'S ISLAND
PRALL'S RIVER
CHELSEA RD
SHORE EXP
GULF AV
GLEN ST
CHELSEA
MEREDITH AV
RAHWAY
WARNERS STA
C. OF N.J. R.R.

Figure C37. Map of Linden, NJ.



STATEN ISLAND
ARTHUR KILL
PRALLS ISLAND
RAHWAY RIVER
NEW JERSEY TURNPIKE
GOETHALS BR.
RD. TO GRASSELLI
TREMLEY PT. RD
WOOD AV.
LINDEN AV
PARK AV
ROSE HILL CEMETERY
WEST BROOK DR
LINDEN MUNICIPAL AIRPT.
GIBBONS ST.
N
0
1 mile
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
19
L1
L2
L3
L4
L5
L6
L7
L8
L9

Figure C38. Map of Linden, NJ, Area depicting sampling sites.

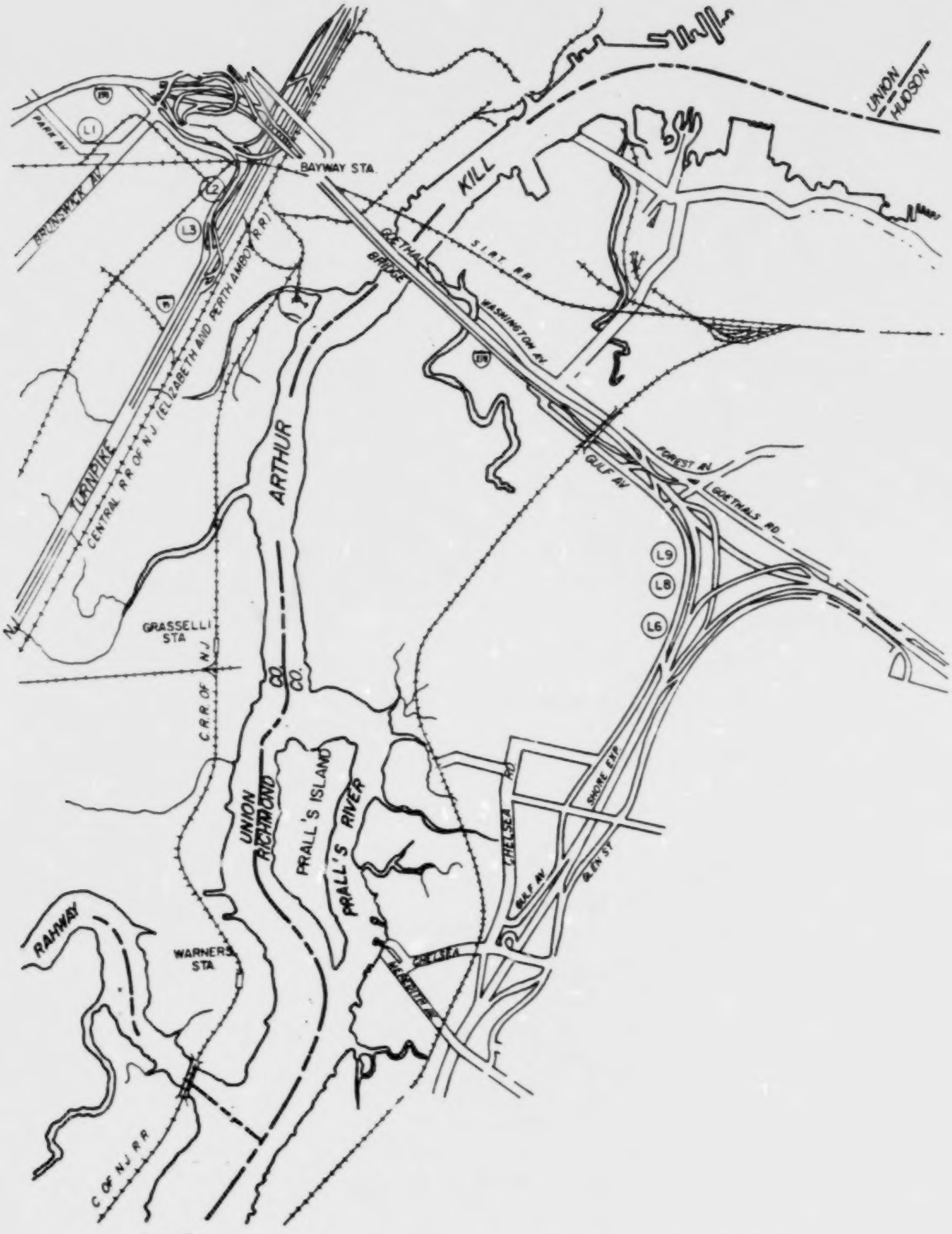

UNION
HUDSON
KILL
BAYWAY STA.
PARK AV
BRUNSWICK AV
L1
L2
L3
GOETHALS BRIDGE
S.I.R.T. RR
WASHINGTON AV
CENTRAL R.R. OF N.J. (ELIZABETH AND PERTH AMBOY R.R.)
TURNPIKE
ARTHUR
FOREST AV
GULF AV
GOETHALS RD
L9
L8
L6
GRASSELLI STA
C.R.R. OF N.J.
UNION
RICHMOND
PRALL'S ISLAND
PRALL'S RIVER
CHELSEA RD
SHORE EXP
GULF AV
RAHWAY
WARNERS STA
CHELSEA
C. OF N.J. R.R.
N.J.

Figure C39. Map of Linden, NJ, area depicting sampling sites.

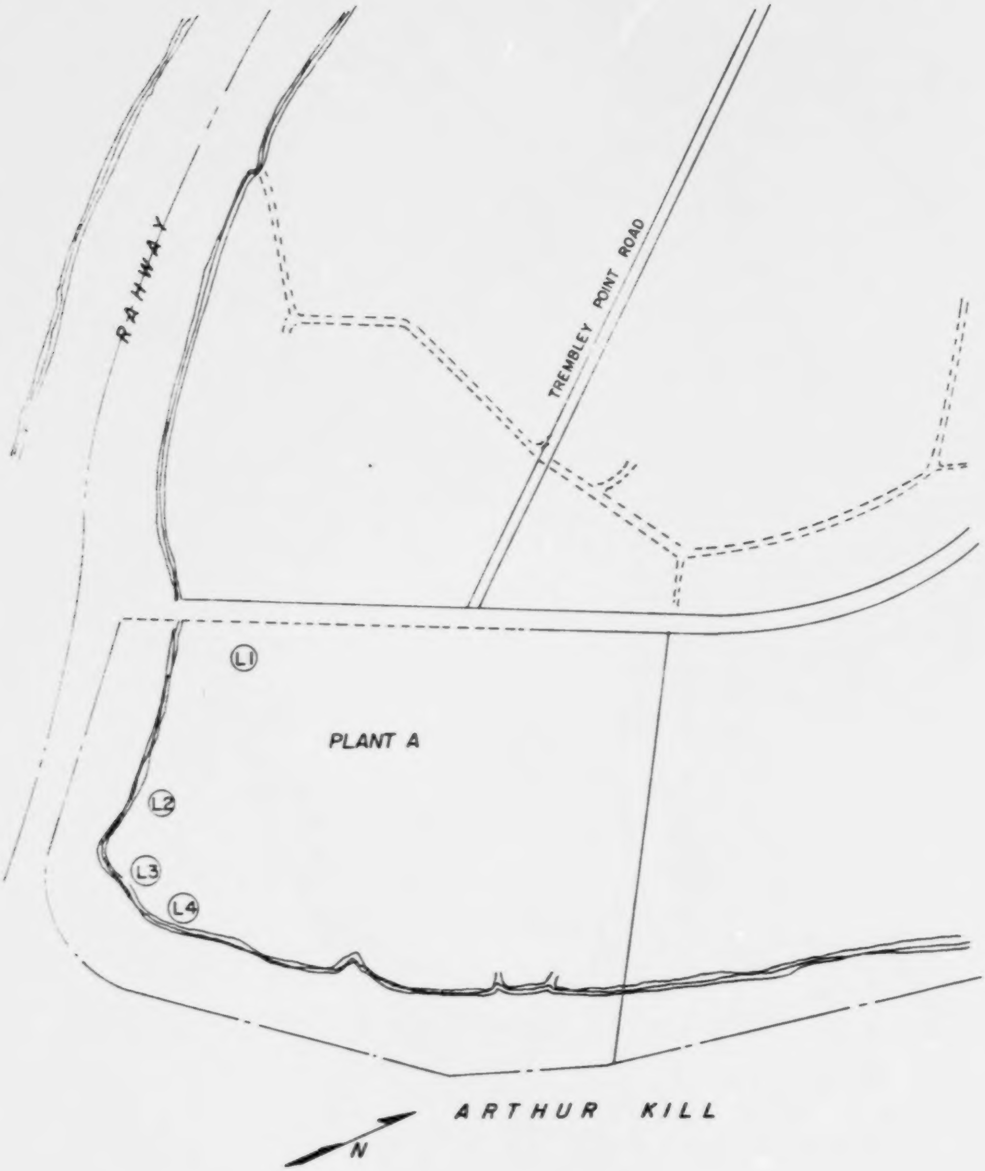

RAHWAY
TREMBLEY POINT ROAD
L1
PLANT A
L2
L3
L4
ARTHUR KILL
N

Figure C40. Sampling locations on American Cyanamid Corp. plant site.

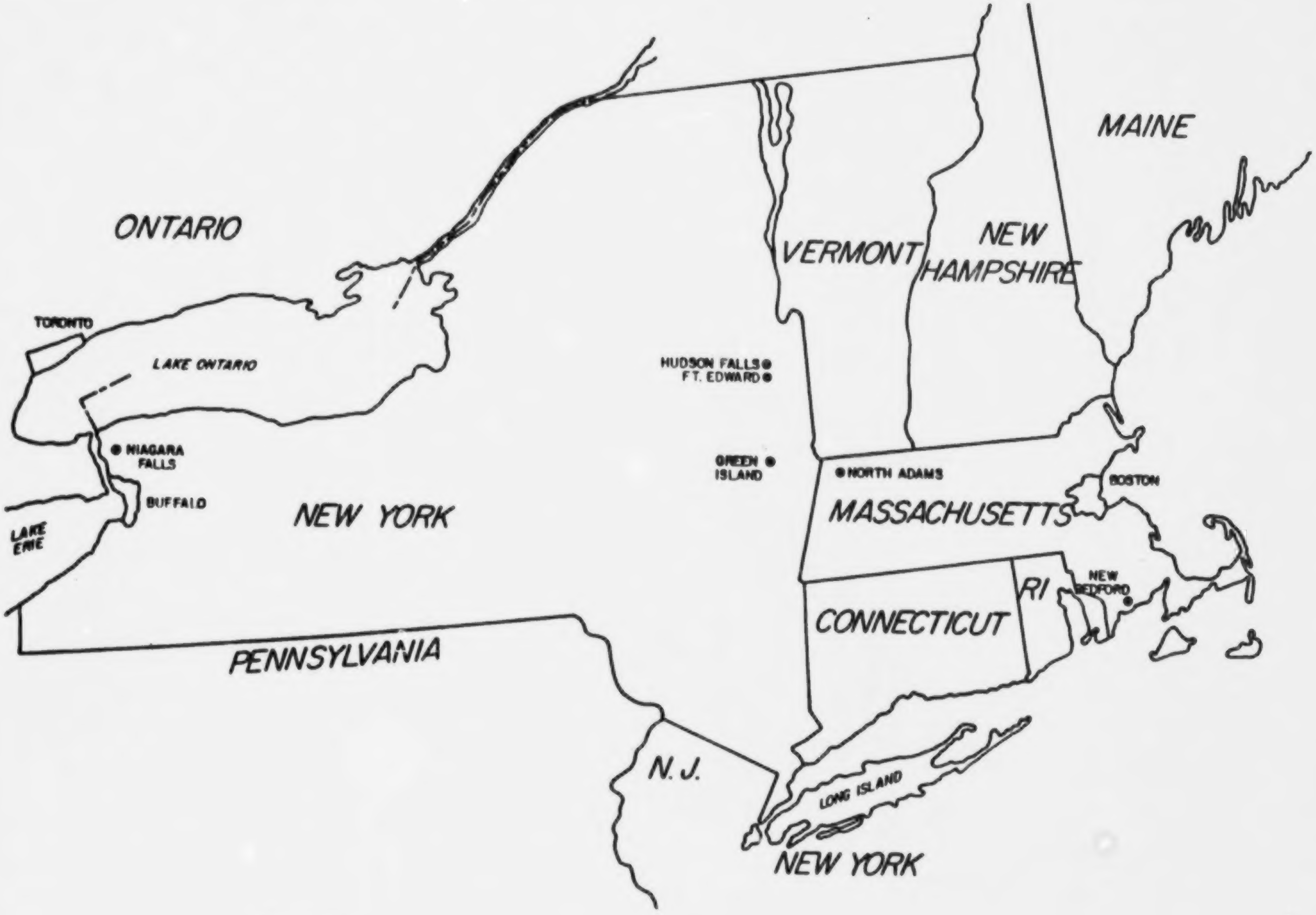

MAINE
ONTARIO
VERMONT
NEW HAMPSHIRE
TORONTO
LAKE ONTARIO
HUDSON FALLS
FT. EDWARD
NIAGARA FALLS
GREEN ISLAND
NORTH ADAMS
BOSTON
BUFFALO
LAKE ERIE
NEW YORK
MASSACHUSETTS
RI
NEW BEDFORD
CONNECTICUT
PENNSYLVANIA
N.J.
LONG ISLAND
NEW YORK
1" = 35 miles

Figure C41. Sampling sites visited in Northeastern states (solid circles).

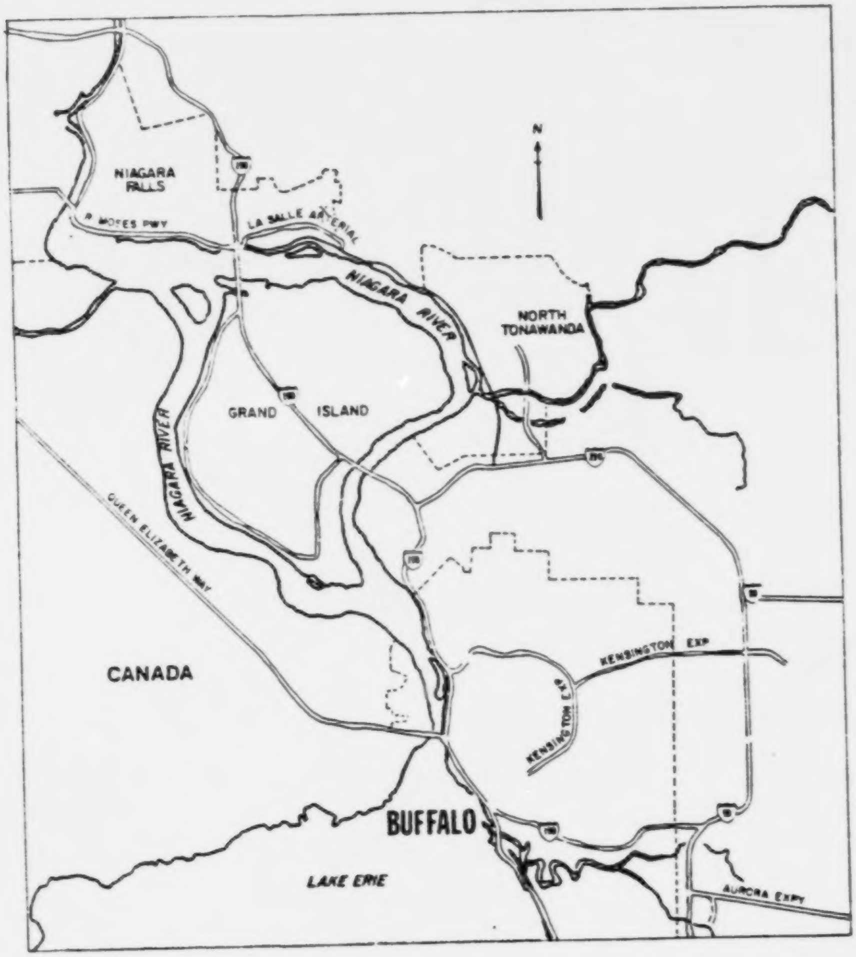

N
NIAGARA FALLS
R MOSES PWY
LA SALLE ARTERIAL
NIAGARA RIVER
NORTH TONAWANDA
GRAND ISLAND
NIAGARA RIVER
QUEEN ELIZABETH WAY
CANADA
KENSINGTON EXP
KENSINGTON EXP
BUFFALO
LAKE ERIE
AURORA EXPY

Figure C42. Map of Buffalo and Niagara Falls, NY, area (x = sampling site near LaSalle Arterial).

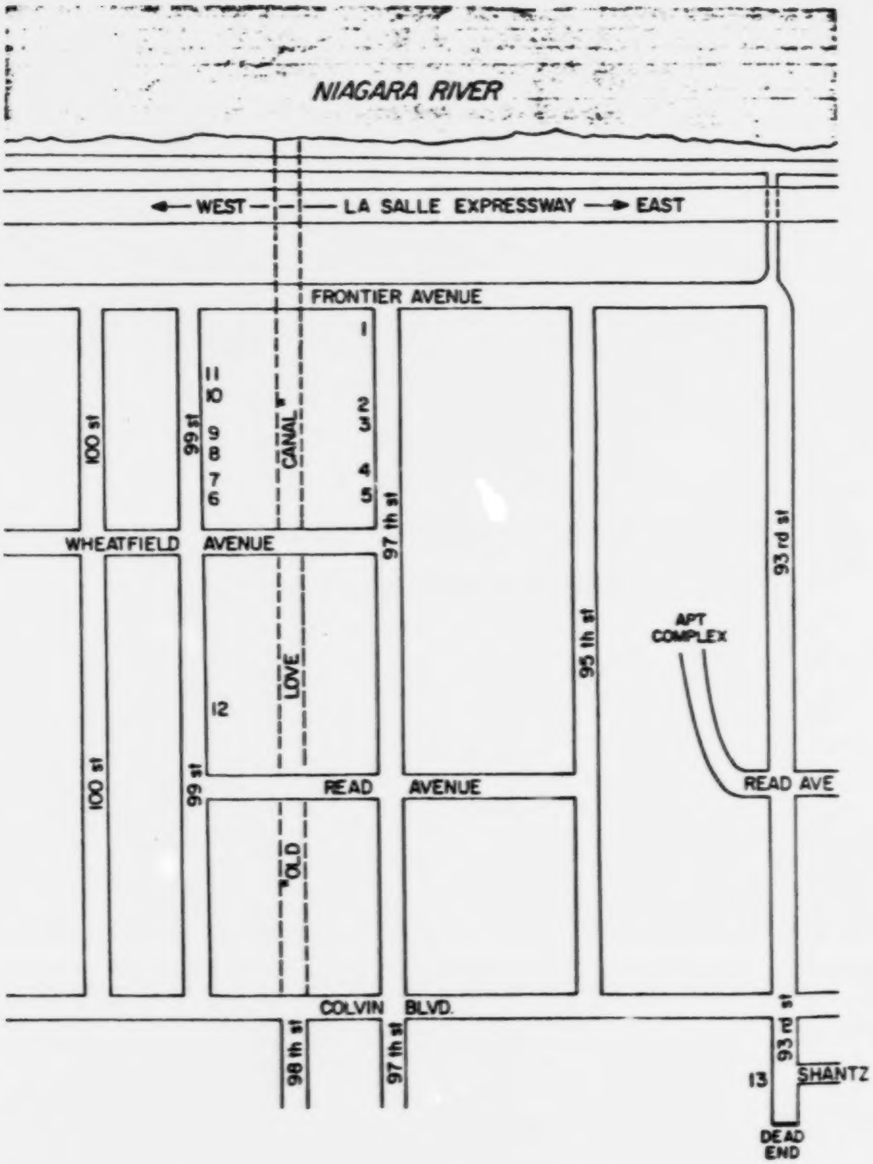

NIAGARA RIVER
WEST
LA SALLE EXPRESSWAY
EAST
FRONTIER AVENUE
WHEATFIELD
AVENUE
READ
AVENUE
READ AVE
COLVIN
BLVD.
100 st
99 st
98 th st
97 th st
95 th st
93 rd st
"LOVE CANAL"
"OLD
APT COMPLEX
SHANTZ
DEAD END
1
2
3
4
5
6
7
8
9
10
11
12
13

Figure C43. Map depicting sampling locations 1 to 13 in Niagara Falls, NY.

APPENDIX D

VAPOR-PHASE HALOGENATED CHEMICALS IDENTIFIED IN THE AMBIENT AIR THROUGHOUT THE CONTINENTAL U.S.

Table D1. VAPOR-PHASE HALOGENATED CHEMICALS - EPA REGION II

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	chloromethane	74-87-3	Clifton, NJ	Dyer Ave. & Wheeler St.	07014	1528-1607	082-76	
			Passaic, NJ	First St. & Essex St.	07055	1715-1754	082-76	
			Hoboken, NJ	New County Rd. U.S. Post Office Depot	07030	1223-1302	083-76	
			Newark, NJ	552 Doremus Ave.	07105	1400-1438	083-76	
			Edison, NJ	N. of Kin-Buc	08817	1207-1359	181-76	
			Edison, NJ	Meadow Rd.	08817	1607-1737	181-76	
			Sayreville, NJ	Off St. Stanislaus School Rd.	08872	1029-1229	182-76	
			Edison, NJ	Meadow Rd.	08817	1030-1230	182-76	
			Edison, NJ	Meadow Rd.	08817	1458-1646	182-76	
			East Brunswick, NJ	Tower Marina	08816	1006-1206	183-76	
			Edison, NJ	On Kin-Buc disposal site	08817	1015-1038	183-76	
			East Brunswick, NJ	Tower Marina	08816	1425-1625	183-76	
			Linden, NJ	Tremley Point Rd.	67031	1228-1445	172-77	
			Linden, NJ	Tremley Point Rd.	07036	1540-1045	172-3-77	
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	
			Deepwater, NJ	Off US Route 130	08023	1554-1759	174-77	
II	vinyl chloride	75-01-4	Clifton, NJ	Dyer Ave. & Wheeler St.	07014	1528-1607	082-76	400
			Passaic, NJ	First St. & Essex St.	07055	1715-1754	082-76	~120,000
			Edison, NJ	Top of KB Mound	08817	1506-1517	085-76	T (11538)
II	bromomethane	74-83-9	Newark, NJ	552 Doremus Ave.	07105	1400-1438	083-76	
			Linden, NJ	Tremley Point Rd.	07036	1228-1445	172-76	
			Linden, NJ	Off Tremley Point Rd.	07036	1540-1045	173-3-76	

- Continued -

Table D1 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	chloroethane	75-00-3	Passaic, NJ	First St. & Essex St.	07055	1715-1754	082-76	
			Newark, NJ	552 Doremus Ave.	07105	1400-1438	083-76	
			Bound Brook, NJ	Eastern Turnpike	08805	1732-1816	084-76	
			Edison, NJ	N.J. Turnpike at Mill Rd.	08817	1048-1259	086-76	
			Linden, NJ	Tremley Point Rd.	07036	1228-1445	172-77	
			Linden, NJ	Off Tremley Point Rd.	07036	1540-1045	172-3-77	
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	
II	vinylidene chloride	75-35-4	Edison, NJ	W. of Kin-Buc	08817	1029-1229	182-76	T (454)
			Bridgeport, NJ	Off High Hill Rd.	08014	1030-1130	265-77	T (303)
			Linden, NJ	Tremley Point Rd.	07036	1035-1135	315-77	T (263)
			Staten Island, NY	Forest Ave.	10303	1045-1200	316-77	T (263)
II	bromoethane	74-96-4	Edison, NJ	Parkland	08817	1247-1323	084-76	1,000
			Edison, NJ	Top of KB Mound	08817	1506-1517	085-76	T
II	methylene chloride	75-09-2	Paterson, NJ	12th St. & 4th Ave.	07524	1231-1313	082-76	1,091
			Clifton, NJ	Dyer Ave. & Wheeler St.	07014	1528-1607	082-76	1,545
			Passaic, NJ	First St. & Essex St.	07055	1715-1754	082-76	400
			Hoboken, NJ	New County Rd. U.S. Post Office Depot	07030	1223-1302	083-76	T
			Newark, NJ	552 Doremus Ave.	07105	1400-1438	083-76	
			Staten Island, NY	Chelsea Rd. at Bloomfield Ave.	10314	1702-1739	083-76	
			Fords, NJ		08863	1559-1643	084-76	9,286
			Bound Brook, NJ	Eastern Turnpike	08805	1732-1816	084-76	
			Edison, NJ	Parkland	08817	1247-1323	084-76	375,000
			East Brunswick, NJ	Tower Marina Schoolhouse Rd.	08816	1647-1725	084-76	125,000
			Edison, NJ	Parkland	08817	1647-1725	084-76	390,000

(continued)

Table D1 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	methylene chloride, (cont.)	75-09-2	East Brunswick, NJ	Tower Marina Schoolhouse Rd.	08816	1647-1725	084-76	125,000
			Edison, NJ	Parkland	08817	1647-1725	084-76	390,000
			East Brunswick, NJ	Tower Marina	08816	1115-1155	085-76	50
			East Brunswick, NJ	Tower Marina	08816	1508-1553	085-76	10
			Edison, NJ	Top of KB Mound	08817	1506-1517	085-76	1,250,000
			Edison, NJ	Meadow Rd. (bet. Stauffer and KB)	08817	1620-1702	085-76	T
			Edison, NJ	N.J. Turnpike at Mill Rd.	08817	1048-1259	086-76	42
			Sayreville, NJ	St. Stanislaus School Rd.	08872	1049-1259	086-76	T
			East Brunswick, NJ	Tower Marina	08816	1207-1359	181-76	T (1000)
			Edison, NJ	N. or Kin-Buc	08817	1207-1359	181-76	T (1000)
			East Brunswick, NJ	Tower Marina	08816	1607-1737	181-76	T (3750)
			Edison, NJ	Meadow Rd.	08817	1607-1737	181-76	T (3750)
			Edison, NJ	E. of Kin-Buc	08817	1607-1737	181-76	T (3750)
			Edison, NJ	E. of KB disposal site	08817	1607-1737	181-76	T (3750)
			Sayreville, NJ	Off St. Stanislaus School Rd.	08872	1029-1229	182-76	7,600
			Edison, NJ	Meadow Rd.	08817	1030-1230	182-76	T (1000)
			Edison, NJ	Meadow Rd.	08817	1029-1229	182-76	T (1000)
			Edison, NJ	W. of Kin-Buc disposal site	08817	1029-1229	182-76	T (1000)
			East Brunswick, NJ	Tower Marina	08816	1457-1646	182-76	T (1250)
			Edison, NJ	Meadow Rd.	08817	1458-1646	182-76	T (1250)
			Edison, NJ	NE of Kin-Buc disposal site	08817	1457-1648	182-76	T (1250)
			East Brunswick, NJ	Tower Marina	08816	1006-1206	183-76	T (1000)
			Edison, NJ	Meadow Rd.	08817	1006-1206	183-76	T (1000)

(continued)

Table Dl (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	methylene chloride, (cont.)	75-09-2	Edison, NJ	On Kin-Buc disposal site	08817	1015-1038	183-76	40,000
			Edison, NJ	E. of Kin-Buc	08817	1006-1206	183-76	100,000
			East Brunswick, NJ	Tower Marina	08816	1425-1625	183-76	3,000
			Edison, NJ	N. of Kin-Buc disposal site	08817	1457-1646	182-76	T (1250)
			Edison, NJ	Meadow Rd.	08817	1425-1625	183-76	T (1000)
			Edison, NJ	On Kin-Buc disposal site	08817	1444-1458	183-76	260,000
			Edison, NJ	E. of Kin-Buc	08817	1425-1625	183-76	42,000
			Linden, NJ	Tremley Point Road upwind N.	07036	1225-1445	172-77	100
			Linden, NJ	Tremley Point Road	07036	1228-1445	172-77	258
			Linden, NJ	Off Tremley Point Rd.	07036	1226-1445	172-77	168
			Linden, NJ	Off Tremley Point Rd.	07036	1227-1445	172-77	58
			Linden, NJ	Off Tremley Point Rd.	07036	1603-1045	172-3-77	52
			Linden, NJ	Off Tremley Point Rd.	07036	1535-1045	172-3-77	324
			Linden, NJ	Off Tremley Point Rd.	07036	1540-1045	172-3-77	369
			Linden, NJ	Off Tremley Point Rd.	07036	1530-1045	172-3-77	134
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	81
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	261
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	972
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	418
			Deepwater, NJ	Close Salem Canal	08023	1612-1833	174-77	65
			Deepwater, NJ	Off U.S. Route 130	08023	1602-1818	174-77	405
			Deepwater, NJ	Off U.S. Route 130	08023	1600-1807	174-77	35
			Deepwater, NJ	Off U.S. Route 130	08023	1554-1754	174-77	437
			Deepwater, NJ	Close Salem Canal	08023	1837-1050	174-5-77	75
			Deepwater, NJ	Off U.S. Route 130	08023	1800-1120	174-5-77	625
			Deepwater, NJ	Close Salem Canal	08023	1055-1255	175-77	345
			Deepwater, NJ	Off U.S. Route 130	08023	1107-1307	175-77	248
			Deepwater, NJ	Off U.S. Route 130	08023	1115-1315	175-77	261
			Deepwater, NJ	Off U.S. Route 130	08023	1125-1325	175-77	81

(continued)

Table D1 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	methylene chloride (cont.)	75-09-2	Burlington, NJ	Burlington Ave.	08016	1545-1645	262-77	T (1000)
			Bridgeport, NJ	Logan Township	08014	1532-1642	265-77	T (555)
			Bridgeport, NJ	Off High Hill Rd.	08014	1030-1130	265-77	914 ± 460
			Deepwater, NJ	Off U.S. Route 130	08023	1823-1103	174-5-77	486
			Linden, NJ	Park Rd. with Brunswick	07036	1130-1230	314-77	2,709
			Linden, NJ	Off Turnpike (NE)	07036	1130-1240	314-77	1,454
			Linden, NJ	Off Turnpike	07036	1130-1230	314-77	1,772 ± 1,318
			Linden, NJ	West Brook Dr.	07036	1458-1700	314-77	1,960
			Linden, NJ	Parking Lot	07036	1520-1640	314-77	2,100
			Linden, NJ	Rose Hill Cementary in West Brook Dr.	07036	1040-1140	315-77	6,444
			Linden, NJ	Tremley Point Rd.	07026	1035-1135	315-77	T (500)
			Staten Island, NY	Gulf Ave.	10303	1035-1135	315-77	17,400
			Linden, NJ	Gibbons Ave. & Wood	07036	1530-1630	315-77	26,778
			Staten Island, NY	Forest Ave.	10303	1045-1200	316-77	19,333 ± 555
			Staten Island, NY	Off I-278	10303	1051-1153	316-77	9,778
			Niagara Falls, NY	703, 97th St.	14304	1051-1409	040-78	1,534
			Niagara Falls, NY	763, 97th St.	14304	1055-1450	038-78	1,300
			Niagara Falls, NY	779, 97th St.	14304	1130-1457	038-78	1,334
			Niagara Falls, NY	783, 97th St.	14304	1013-1935	039-78	11,556
			Niagara Falls, NY	476, 99th St.	14304	0923-1255	039-78	9,428
			Niagara Falls, NY	474, 99th St.	14304	0910-1216	040-78	1,545
			Niagara Falls, NY	468, 99th St.	14304	1155-1507	038-78	3,000
			Niagara Falls, NY	460, 99th St.	14304	0950-1221	040-78	3,627
			Niagara Falls, NY	454, 99th St.	14304	0945-1305	039-78	1,285
			Niagara Falls, NY	440, 99th St.	14304	1038-1312	039-78	2,250
			Niagara Falls, NY	99th St. School Gym.	14304	0855-1655	039-78	4,000
			Niagara Falls, NY	99th St. School	14304	0845-1725	040-78	10,182
			Niagara Falls, NY	93rd St. School	14304	0830-1460	039-78	1,428
			Niagara Falls, NY	93rd St. School	14304	0832-1642	039-78	1,857
			Niagara Falls, NY	93rd St. School	14304	0830-1640	040-78	44

(continued)

Table D1 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	1,2-dichloroethylene	540-59-0	East Brunswick, NJ	Tower Marina	08816	1607-1737	181-76	4,847
			Edison, NJ	Meadow Rd.	08817	1607-1737	181-76	4,500
			Edison, NJ	E. of Kin-Buc	08817	1607-1737	181-76	5,263
			Edison, NJ	E. of Kin-Buc	08817	1607-1737	181-76	T (565)
			Linden, NJ	Tremley Point Rd.	07036	1035-1135	315-77	T (263)
			Niagara Falls, NY	783, 97th St.	14304	1013-1935	039-78	T (29)
			Niagara Falls, NY	476, 99th St.	14304	0923-1255	039-78	T (334)
			Niagara Falls, NY	474, 99th St.	14304	0910-1216	040-78	63
			Niagara Falls, NY	468, 99th St.	14304	1155-1507	038-78	710
			Niagara Falls, NY	454, 99th St.	14304	0945-1305	039-78	334
			Niagara Falls, NY	440, 99th St.	14304	1038-1312	039-78	294
			Niagara Falls, NY	99th St. School Gym.	14304	0855-1655	039-78	T (334)
			Niagara Falls, NY	99th St. School	14304	0845-1725	040-78	104
II	chloropropane isomer	540-54-5 or 75-29-6	Fords, NJ		08863	1559-1643	084-76	
			Sayreville, NJ	Off St. Stanislaus School Road	08872	1029-1229	182-76	4,067
II	3-chloropropene	107-05-1	Edison, NJ	E. of Kin-Buc	08817	1607-1737	181-76	28,667
			Edison, NJ	Meadow Rd.	08817	1029-1229	182-76	T
			Edison, NJ	W. of Kin-Buc	08817	1029-1229	182-76	T
			Edison, NJ	N. of Kin-Buc	08817	1457-1646	182-76	2,428
II	1,1-dichloroethane	75-34-3	Edison, NJ	On Kin-Buc disposal site	08817	1444-1458	183-76	22,700
			Linden, NJ	Tremley Point Rd.	07036	1035-1135	315-77	229
II	chloroform	67-66-3	Paterson, NJ	12th St. & 4th Ave.	07524	1231-1313	082-76	3,750
			Clifton, NJ	Dyer Ave. & Wheeler St.	07014	1528-1607	082-76	8,300
			Passaic, NJ	First St. & Essex Ave.	07055	1715-1754	082-76	4,167
			Hoboken, NJ	New County Rd. U.S. Post Office Depot	07030	1223-1302	083-76	2,083

(continued)

Table D1 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	chloroform (cont.)	67-66-3	Newark, NJ	552 Doremus Ave.	07105	1400-1438	083-76	37,000
			Staten Island, NY	Chelsea Rd. at Bloomfield Ave.	10314	1702-1739	083-76	20,830
			Fords, NJ		08863	1559-1643	084-76	16,700
			Bound Brook, NJ	Eastern Turnpike	08805	1732-1816	084-76	4,167
			Edison, NJ	Parkland	08817	1247-1323	084-76	74,000
			East Brunswick, NJ	Tower Marina Schoolhouse Rd.	08816	1647-1725	084-76	1,000
			Edison, NJ	Parkland	08817	1647-1725	084-76	128,000
			East Brunswick, NJ	Tower Marina	08816	1115-1155	085-76	15,000
			East Brunswick, NJ	Tower Marina	08816	1508-1553	085-76	20,000
			Edison, NJ	Top of KB Mound	08817	1506-1517	085-76	266,000
			Edison, NJ	Meadow Rd. (bet. Stauffer and KB)	08817	1620-1702	085-76	45,000
			Edison, NJ	N.J. Turnpike at Mill Rd.	08817	1048-1259	086-76	1,000
			Sayreville, NJ	St. Stanislaus School Rd.	08872	1049-1259	086-76	30,000
			East Brunswick, NJ	Tower Marina	08816	1207-1359	181-76	6,389
			Edison, NJ	Meadow Rd.	08817	1206-1355	181-76	T (230)
			Edison, NJ	N. of KB disposal site	08817	1207-1359	181-76	T (230)
			Edison, NJ	N. of Kin Buc	08817	1207-1359	181-76	T (230)
			East Brunswick, NJ	Tower Marina	08816	1607-1737	181-76	1,999
			Edison, NJ	Meadow Rd.	08817	1607-1737	181-76	T (230)
			Edison, NJ	E. of Kin-Buc	08817	1607-1737	181-76	T (230)
			Sayreville, NJ	Off St. Stanislaus School Rd.	08872	1029-1229	182-76	9,000
			Edison, NJ	Meadow Rd.	08817	1030-1230	182-76	1,844
			Edison, NJ	Meadow Rd.	08817	1029-1229	182-76	12,333
			Edison, NJ	W. of Kin-Buc disposal site	08817	1029-1229	182-76	3,445

(continued)

Table D1 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	chloroform (cont.)	67-66-3	E. Brunswick, NJ	Tower Marina	08816	1457-1646	182-76	186
			Edison, NJ	Meadow Rd.	08817	1458-1646	182-76	5,834
			Edison, NJ	NE of Kin-Buc disposal site	08817	1457-1648	182-76	2,778
			East Brunswick, NJ	Tower Marina	08816	1006-1206	183-76	17,222
			Edison, NJ	Meadow Rd.	08817	1006-1206	183-76	11,111
			Edison, NJ	On Kin-Buc disposal site	08817	1015-1038	183-76	19,444
			Edison, NJ	E. of Kin-Buc	08817	1006-1206	183-76	8,334
			East Brunswick, NJ	Tower Marina	08816	1425-1625	183-76	944
			Edison, NJ	N. of Kin-Buc disposal site	08817	1457-1646	182-76	8,999
			Edison, NJ	Meadow Rd.	08817	1425-1625	183-76	2,500
			Edison, NJ	On Kin-Buc disposal site	08817	1444-1458	183-76	27,200
			Edison, NJ	E. of Kin-Buc	08817	1425-1625	183-76	28,334
			Linden, NJ	Tremley Point Rd. upwind N.	07036	1225-1445	172-77	50
			Linden, NJ	Tremley Point Rd.	07036	1228-1445	172-77	154
			Linden, NJ	Off Tremley Point Rd.	07036	1226-1445	172-77	133
			Linden, NJ	Off Tremley Point Rd.	07036	1227-1445	172-77	99
			Linden, NJ	Off Tremley Point Rd.	07036	1603-1045	172-3-77	41
			Linden, NJ	Off Tremley Point Rd.	07036	1535-1045	172-3-77	195
			Linden, NJ	Off Tremley Point Rd.	07036	1540-1045	172-3-77	178
			Linden, NJ	Off Tremley Point Rd.	07036	1530-1045	172-3-77	150
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	86
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	229
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	773
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	190
			Deepwater, NJ	Close Salem Canal	08023	1612-1833	174-77	152
			Deepwater, NJ	Off U.S. Route 130	08023	1602-1818	174-77	T
			Deepwater, NJ	Off U.S. Route 130	08023	1554-1754	174-77	T

(continued)

Table D1 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	chloroform (cont.)	67-66-3	Deepwater, NJ	Close Salem Canal	08023	1837-1050	174-5-77	150
			Deepwater, NJ	Off U.S. Route 130	08023	1800-1120	174-5-77	64
			Deepwater, NJ	Off U.S. Route 130	08023	1107-1307	175-77	70
			Deepwater, NJ	Off U.S. Route 130	08023	1115-1315	175-77	90
			Deepwater, NJ	Off U.S. Route 130	08023	1125-1325	175-77	13
			Burlington, NJ	Burlington Ave.	08016	1545-1645	262-77	T (167)
			Bridgeport, NJ	Logan Township	08014	1532-1642	265-77	154 ± 58
			Bridgeport, NJ	Off High Hill Rd.	08014	1030-1130	265-77	277 ± 166
			Deepwater, NJ	Off U.S. Route 130	08023	1823-1103	174-5-77	439
			Linden, NJ	Park Rd. with Brunswick	07036	1130-1230	314-77	1,178
			Linden, NJ	Off Turnpike (NE)	07036	1130-1240	314-77	429
			Linden, NJ	Off Turnpike	07036	1130-1230	314-77	440 ± 210
			Linden, NJ	West Brook Dr.	07036	1458-1700	314-77	T (75)
			Linden, NJ	Parking Lot	07036	1520-1640	314-77	T (75)
			Linden, NJ	Rose Hill Cemetary in West Brook Dr.	07036	1040-1140	315-77	125
			Linden, NJ	Tremley Point Rd.	07036	1035-1135	315-77	T (93)
			Staten Island, NY	Gulf Ave.	10303	1035-1135	315-77	144
			Linden, NJ	Gibbons Ave. & Wood	07036	1530-1630	315-77	355
			Staten Island, NY	Forest Ave.	10303	1045-1200	316-77	258 ± 97
			Staten Island, NY	Off I-278	10303	1051-1153	316-77	164
			Niagara Falls, NY	703, 97th St.	14304	1051-1409	040-78	1,670
			Niagara Falls, NY	753, 97th St.	14304	1035-1250	038-78	834
			Niagara Falls, NY	763, 97th St.	14304	1055-1450	038-78	464
			Niagara Falls, NY	779, 97th St.	14304	1130-1457	038-78	684
			Niagara Falls, NY	783, 97th St.	14304	1013-1935	039-78	13,484
			Niagara Falls, NY	476, 97th St.	14304	0923-1255	039-78	8,584
			Niagara Falls, NY	474, 99th St.	14304	0910-1216	040-78	1,595
			Niagara Falls, NY	468, 99th St.	14304	1155-1507	038-78	3,452
			Niagara Falls, NY	460, 99th St.	14304	0950-1221	040-78	2,190
			Niagara Falls, NY	454, 99th St.	14304	0945-1305	039-78	1,250

(continued)

Table D1 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	chloroform (cont.)	67-66-3	Niagara Falls, NY	440, 99th St.	14304	1038-1312	039-78	821
			Niagara Falls, NY	99th St. School Gym.	14304	0855-1655	039-78	2,668
			Niagara Falls, NY	99th St. School	14304	0845-1725	040-78	3,119
			Niagara Falls, NY	93rd St. School	14304	0830-1460	039-78	667
			Niagara Falls, NY	93rd St. School	14304	0832-1642	039-78	833
			Niagara Falls, NY	93rd St. School	14304	0830-1640	040-78	895
II	1,2-dichloroethane	107-06-2	Paterson, NJ	12th St. & 4th Ave.	07524	1231-1313	082-76	T
			Clifton, NJ	Dyer Ave. & Wheeler St.	07014	1528-1607	082-76	64,516
			Passaic, NJ	First Street & Essex St.	07055	1715-1754	082-76	T
			Hoboken, NJ	New County Rd.	07030	1223-1302	083-76	T
			Newark, NJ	U.S. Post Office Depot 552 Doremus Ave.	07105	1400-1438	083-76	T
			Fords, NJ		08863	1559-1643	084-76	T
			Bound Brook, NJ	Eastern Turnpike	08805	1732-1816	084-76	T
			Edison, NJ	Parkland	08817	1247-1323	084-76	35,000
			Edison, NJ	Parkland	08817	1647-1725	084-76	33,000
			Edison, NJ	Top of Kin-Buc	08817	1506-1517	085-76	57,000
			Edison, NJ	E. of Kin-Buc	08817	1607-1737	181-76	T (347)
			Edison, NJ	E. of KB disposal site	08817	1607-1737	181-76	2,173
			Sayreville, NJ	Off St. Stanislaus School Rd.	08872	1029-1229	182-76	37,913
			Edison, NJ	Meadow Rd.	08817	1030-1230	182-76	T
			Edison, NJ	Meadow Rd.	08817	1029-1229	182-76	T (347)
			Edison, NJ	W. of Kin-Buc disposal site	08817	1029-1229	182-76	347
			Edison, NJ	Meadow Rd.	08817	1458-1646	182-76	T (444)
			Edison, NJ	N. of Kin-Buc	08817	1207-1359	181-76	217
			E. Brunswick, NJ	Tower Marina	08816	1607-1737	181-76	T (150)
			Edison, NJ	Meadow Rd.	08817	1607-1737	181-76	434

(continued)

Table D1 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	1,2-dichloroethane (cont.)	67-66-3	Edison, NJ	On Kin-Buc disposal site	08817	1015-1038	183-76	7,575
			Edison, NJ	E. of Kin-Buc	08817	1006-1206	183-76	9,565
			East Brunswick, NJ	Tower Marina	08816	1425-1625	183-76	T (347)
			Edison, NJ	N. of Kin-Buc disposal site	08817	1457-1646	182-76	1,130
			Edison, NJ	On Kin-Buc disposal site	08817	1444-1458	183-76	27,700
			Edison, NJ	E. of Kin-Buc	08817	1425-1625	183-76	260
			Linden, NJ	Tremley Point Rd.	07036	1228-1445	172-77	14
			Linden, NJ	Off Tremley Point Rd.	07036	1226-1445	172-77	9
			Linden, NJ	Off Tremley Point Rd.	07036	1227-1445	172-77	42
			Linden, NJ	Off Tremley Point Rd.	07036	1603-1045	172-3-77	12
			Linden, NJ	Off Tremley Point Rd.	07036	1535-1045	172-3-77	9
			Linden, NJ	Off Tremley Point Rd.	07036	1540-1045	172-3-77	47
			Linden, NJ	Off Tremley Point Rd.	07036	1530-1045	172-3-77	34
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	T
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	38
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	9
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	8
			Deepwater, NJ	Close Salem Canal	08023	1612-1833	174-77	12
			Deepwater, NJ	Off U.S. Route 130	08023	1602-1818	174-77	T
			Deepwater, NJ	Off U.S. Route 130	08023	1554-1754	174-77	T
			Deepwater, NJ	Off U.S. Route 130	08023	1800-1120	174-5-77	53
			Deepwater, NJ	Off U.S. Route 130	08023	1107-1307	175-77	T
			Deepwater, NJ	Off U.S. Route 130	08023	1125-1325	175-77	24
			Burlington, NJ	Burlington Ave.	08016	1545-1645	262-77	T
			Bridgeport, NJ	Logan Township	08014	1532-1642	265-77	T (195)
			Bridgeport, NJ	Off High Hill Rd.	08014	1030-1130	265-77	T (222)
			Linden, NJ	Parking Lot	07036	1520-1640	314-77	T (160)
			Linden, NJ	Rose Hill Cemetary in West Brook Dr.	07036	1040-1140	315-77	T (151)
			Linden, NJ	Tremley Point Rd.	07036	1035-1135	315-77	T (195)

(continued)

Table D1 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	1,2-dichloroethane (cont.)	67-66-3	Staten Island, NY	Gulf Ave.	10303	1035-1135	315-77	T (186)
			Staten Island, NY	Forest Ave.	10303	1045-1200	316-77	T (195)
			Staten Island, NY	Off I-278	10303	1051-1153	316-77	T (205)
			Linden, NJ	Park Rd. with Brunswick	07036	1130-1230	314-77	101
			Linden, NJ	Off Turnpike (NE)	07036	1130-1240	314-77	41
II	1,1,1-trichloroethane	71-55-6	Paterson, NJ	12th St. & 4th Ave.	07524	1231-1313	082-76	T
			Clifton, NJ	Dyer Ave. & Wheeler St.	07014	1528-1607	082-76	T
			Passaic, NJ	First St. & Essex St.	07055	1715-1754	082-76	13,000
			Hoboken, NJ	New County Rd.	07030	1223-1302	083-76	T
			Newark, NJ	U.S. Post Office Depot 552 Doremus Ave.	07105	1400-1438	083-76	T
			Staten Island, NY	Chelsea Rd. at Bloomfield Ave.	10314	1702-1739	083-76	T
			Fords, NJ		08863	1559-1643	084-76	1,300
			Bound Brook, NJ	Eastern Turnpike	08805	1732-1816	084-76	T
			Edison, NJ	Parkland	08817	1247-1323	084-76	25,000
			East Brunswick, NJ	Tower Marina Schoolhouse Rd.	08816	1647-1725	084-76	T
			Edison, NJ	Parkland	08817	1647-1725	084-76	5,000
			East Brunswick, NJ	Tower Marina	08816	1115-1155	085-76	30
			East Brunswick, NJ	Tower Marina	08816	1508-1553	085-76	T
			Edison, NJ	Top of KB Mound	08817	1506-1517	085-76	500,000
			Edison,,NJ	Meadow Rd. (bet. Stauffer and KB)	08817	1620-1702	085-76	T
			Edison, NJ	N.J. Turnpike at Mill Rd.	08817	1048-1259	080-76	40
			Sayreville, NJ	St. Stanislaus School Road	08872	1049-1259	086-76	30
			E. Brunswick, NJ	Tower Marina	08816	1207-1359	181-76	T (417)
			Edison, NJ	Meadow Rd.	08817	1206-1355	181-76	NQ
			Edison, NJ	N. of KB disposal site	08817	1207-1359	181-76	T (417)

(continued)

Table D1 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	1,1,1-trichloroethane (cont.)	71-55-6	Edison, NJ	N. of Kin-Buc	08817	1207-1359	181-76	T (417)
			E. Brunswick, NJ	Tower Marina	08816	1607-1737	181-76	T (555)
			Edison, NJ	Meadow Road	08817	1607-1737	181-76	T (417)
			Edison, NJ	E. of Kin-Buc	08817	1607-1737	181-76	T (417)
			Edison, NJ	E. of KB disposal site	08817	1607-1737	181-76	T (417)
			Sayreville, NJ	Off St. Stanislaus School Rd.	08872	1029-1229	182-76	T
			Edison, NJ	Meadow Rd.	08817	1030-1230	182-76	T
			Edison, NJ	Meadow Rd.	08817	1029-1229	182-76	19,167
			Edison, NJ	W. of Kin-Buc disposal site	08817	1029-1229	182-76	158
			East Brunswick, NJ	Tower Marina	08816	1457-1646	182-76	T
			Edison, NJ	Meadow Rd.	08817	1458-1646	182-76	T (556)
			Edison, NJ	NE of Kin-Buc disposal site	08817	1457-1648	182-76	T (555)
			East Brunswick, NJ	Tower Marina	08816	1006-1206	183-76	T (417)
			Edison, NJ	Meadow Rd.	08817	1006-1206	183-76	T (417)
			Edison, NJ	On Kin-Buc disposal site	08817	1015-1038	183-76	3,417
			Edison, NJ	E. of Kin-Buc	08817	1006-1206	183-76	~150,000
			East Brunswick, NJ	Tower Marina	08816	1425-1625	183-76	T (417)
			Edison, NJ	N of Kin-Buc disposal site	08817	1457-1646	182-76	7,684
			Edison, NJ	Meadow Road	08817	1425-1625	183-76	T
			Edison, NJ	On Kin-Buc disposal site	08817	1444-1458	183-76	12,000
			Edison, NJ	E. of Kin-Buc	08817	1425-1625	183-76	75,000
			Linden, NJ	Tremley Point Road upwind N.	07036	1225-1445	172-77	13
			Linden, NJ	Tremley Point Rd.	07036	1228-1445	172-77	735
			Linden, NJ	Off Tremley Point Rd.	07036	1226-1445	172-77	9
			Linden, NJ	Off Tremley Point Rd.	07036	1227-1445	172-77	13

(continued)

Table D1 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m³)
II	1,1,1-trichloroethane (cont.)	71-55-6	Linden, NJ	Off Tremley Point Rd.	07036	1603-1045	172-3-77	9
			Linden, NJ	Off Tremley Point Rd.	07036	1535-1045	172-3-77	13
			Linden, NJ	Off Tremley Point Rd.	07036	1540-1045	172-3-77	39
			Linden, NJ	Off Tremley Point Rd.	07036	1530-1045	172-3-77	244
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1470	173-77	T
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	3,116
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	1,440
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	24
			Deepwater, NJ	Off U.S. Route 130	08023	1600-1807	174-77	2,842
			Deepwater, NJ	Off U.S. Route 130	08023	1554-1754	174-77	T
			Deepwater, NJ	Off U.S. Route 130	08023	1800-1120	174-5-77	67
			Deepwater, NJ	Off U.S. Route 130	08023	1107-1307	175-77	T
			Deepwater, NJ	Off U.S. Route 130	08023	1125-1325	175-77	14
			Burlington, NJ	Burlington Ave.	08016	1545-1645	262-77	T (294)
			Bridgeport, NJ	Logan Township	08014	1532-1642	265-77	129 ± 2
			Bridgeport, NJ	Off High Hill Rd.	08014	1030-1130	265-77	656 ± 344
			Linden, NJ	Park Rd. with Brunswick	07036	1130-1230	314-77	222
			Linden, NJ	Off Turnpike (NE)	07036	1130-1240	314-77	265
			Linden, NJ	Off Turnpike	07036	1130-1230	314-77	217 ± 43
			Linden, NJ	West Brook Dr.	07036	1458-1700	314-77	T (100)
			Linden, NJ	Parking Lot	07036	1520-1640	314-77	T (217)
			Linden, NJ	Rose Hill Cemetery in West Brook Dr.	07036	1040-1140	315-77	T (217)
			Linden, NJ	Tremley Point Rd.	07036	1035-1135	315-77	T (250)
			Staten Island, NY	Gulf Ave.	10303	1035-1135	315-77	T (250)
			Linden, NJ	Gibbons Ave. & Wood	07036	1530-1630	315-77	T (278)
			Staten Island, NY	Forest Ave.	10303	1045-1200	316-77	T (278)
			Staten Island, NY	Off I-278	10303	1051-1153	316-77	T (278)
			Niagara Falls, NY	703, 97th St.	14304	1051-1409	040-78	3,656
			Niagara Falls, NY	753, 97th St.	94304	1035-1250	038-78	506
			Niagara Falls, NY	763, 97th St.	14304	1055-1450	038-76	412

(continued)

Table D1 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	1,1,1-trichloroethane (cont.)	71-55-6	Niagara Falls, NY	779, 97th St.	14304	1130-1457	038-78	400
			Niagara Falls, NY	783, 97th St.	14304	1013-1935	039-78	3,890
			Niagara Falls, NY	476, 99th St.	14304	0923-1255	039-78	1,000
			Niagara Falls, NY	474, 99th St.	14304	0910-1216	040-78	608
			Niagara Falls, NY	468, 99th St.	14304	1155-1507	038-78	2,000
			Niagara Falls, NY	460, 99th St.	14304	0950-1221	040-78	356
			Niagara Falls, NY	454, 99th St.	14304	0945-1305	039-78	T (334)
			Niagara Falls, NY	440, 99th St.	14304	1038-1312	039-78	1,562
			Niagara Falls, NY	99th St. School	14304	0845-1725	040-78	369
			Niagara Falls, NY	93rd St. School	14304	0830-1460	039-78	373
			Niagara Falls, NY	93rd St. School	14304	0830-1640	040-78	395
II	1,1-dichloropropane	78-99-9	Hoboken, NJ	New County Rd. U.S. Post Office Depot	07030	1223-1302	083-76	
II	carbon tetrachloride	56-23-5	Paterson, NJ	12th St. & 4th Ave.	07524	1231-1313	082-76	T
			Clifton, NJ	Dyer Ave. & Wheeler St.	07014	1528-1607	082-76	T (59)
			Passaic, NJ	First St. & Essex St.	07055	1715-1754	082-76	T
			Hoboken, NJ	New County Rd. U.S. Post Office Depot	07030	1223-1302	083-76	T
			Newark, NJ	552 Doremus Ave.	07105	1400-1438	083-76	T
			Staten Island, NY	Chelsea Road at Bloomfield Ave.	10314	1702-1739	083-76	T
			Fords, NJ		08863	1159-1643	084-76	334
			Bound Brook	Eastern Turnpike	08805	1732-1816	084-76	T
			East Brunswick, NJ	Tower Marina Schoolhouse Road	08816	1647-1725	084-76	20,000
			Edison, NJ	Parkland	08817	1647-1725	084-76	T
			East Brunswick, NJ	Tower Marina	08816	1115-1155	085-76	T
			East Brunswick, NJ	Tower Marina	08816	1508-1553	085-76	T
			Edison, NJ	Meadow Rd. (bet. Stauffer and KB)	08817	1620-1702	085-76	T

(continued)

Table Dl (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	carbon tetrachloride (cont.)	56-23-5	Edison, NJ	N.J. Turnpike at Mill Road	08817	1048-1259	086-76	T
			Sayreville, NJ	St. Stanislaus School Road	08872	1049-1259	086-76	T
			Edison, NJ	N. of KB disposal site	08817	1207-1359	181-76	1,312
			Edison, NJ	N. of Kin-Buc	08817	1207-1359	181-76	750
			E. Brunswick, NJ	Tower Marina	08816	1607-1737	181-76	12,687
			Edison, NJ	Meadow Rd.	08817	1607-1737	181-76	13,687
			Edison, NJ	E. of Kin-Buc	08817	1607-1737	181-76	7,250
			Edison, NJ	E. of KB disposal site	08817	1607-1737	181-76	1,937
			Sayreville, NJ	Off St. Stanislaus School Road	08872	1029-1229	182-76	T (125)
			Edison, NJ	Meadow Road	08817	1030-1230	182-76	T (125)
			Edison, NJ	Meadow Road	08817	1029-1229	182-76	T (125)
			Edison, NJ	W. of Kin-Buc disposal site	08817	1029-1229	182-76	2,000
			E. Brunswick, NJ	Tower Marina	08816	1457-1646	182-76	1,937
			Edison, NJ	Meadow Rd.	08817	1458-1646	182-76	1,875
			Edison, NJ	NE of Kin-Buc disposal site	08817	1457-1648	182-76	T (153)
			East Brunswick, NJ	Tower Marina	08816	1006-1206	183-76	T (120)
			Edison, NJ	Meadow Rd.	08817	1006-1206	183-76	T (120)
			Edison, NJ	On Kin-Buc disposal site	08816	1015-1038	183-76	T (120)
			Edison, NJ	E. of Kin-Buc	08817	1006-1206	183-76	7,000
			East Brunswick, NJ	Tower Marina	08816	1425-1625	183-76	3,125
			Edison, NJ	N. of Kin-Buc disposal site	08817	1457-1646	182-76	7,625
			Edison, NJ	Meadow Rd.	08817	1425-1625	183-76	625
			Edison, NJ	On Kin-Buc disposal site	08817	1444-1458	183-76	10,600
			Edison, NJ	E of Kin-Buc	08817	1425-1625	183-76	7,000
			Linden, NJ	Tremley Point Road upwind N.	07036	1225-1445	172-77	21

(continued)

Table D1 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	carbon tetrachloride (cont.)	56-23-5	Linden, NJ	Tremley Point Road	07036	1228-1445	172-77	22
			Linden, NJ	Off Tremley Point Rd.	07036	1226-1445	172-77	28
			Linden, NJ	Off Tremley Point Rd.	07036	1227-1445	172-77	10
			Linden, NJ	Off Tremley Point Rd.	07036	1603-1045	172-3-77	14
			Linden, NJ	Off Tremley Point Rd.	07036	1535-1045	172-3-77	14
			Linden, NJ	Off Tremley Point Rd.	07036	1540-1045	172-3-77	71
			Linden, NJ	Off Tremley Point Rd.	07036	1530-1045	172-3-77	51
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	T
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	32
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	T
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	T
			Deepwater, NJ	Close Salem Canal	08023	1612-1833	174-77	19
			Deepwater, NJ	Off U.S. Route 130	08023	1125-1325	175-77	32
			Burlington, NJ	Burlington Ave.	08016	1545-1645	262-77	T (125)
			Bridgeport, NJ	Logan Township	08014	1532-1642	265-77	T (74)
			Bridgeport, NJ	Off High Hill Rd.	08014	1030-1130	265-77	T (83)
			Linden, NJ	Park Rd. with Brunswick	07036	1130-1230	314-77	426
			Linden, NJ	Off Turnpike (NE)	07036	1130-1240	314-77	129
			Linden, NJ	Off Turnpike	07036	1130-1230	314-77	98 ± 39
			Linden, NJ	West Brook Dr.	07036	1458-1700	314-77	T (62)
			Linden, NJ	Parking Lot	07036	1520-1640	314-77	T (62)
			Linden, NJ	Rose Hill Cemetery in West Brook Dr.	07036	1040-1140	315-77	T (69)
			Linden, NJ	Tremley Point Rd.	07036	1035-1135	315-77	T (69)
			Staten Island, NY	Gulf Ave.	10303	1035-1135	315-77	T (69)
			Linden, NJ	Gibbons Ave. & Wood	07036	1530-1630	315-77	T (74)
			Staten Island, NY	Forest Ave.	10303	1045-1200	316-77	T (74)
			Staten Island, NY	Off I-278	10303	1051-1153	316-77	T (74)
			Niagara Falls, NY	703, 97th St.	14304	1051-1409	040-78	200
			Niagara Falls, NY	753, 97th St.	14304	1035-1250	038-78	496
			Niagara Falls, NY	763, 97th St.	14304	1055-1450	038-78	T (83)
			Niagara Falls, NY	779, 97th St.	14304	1130-1457	038-78	5,038

(continued)

Table D1 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	carbon tetrachloride (cont.)	56-23-5	Niagara Falls, NY	783, 97th St.	14304	1013-1935	039-78	562
			Niagara Falls, NY	476, 99th St.	14304	0923-1255	039-78	704
			Niagara Falls, NY	474, 99th St.	14304	0910-1216	040-78	153
			Niagara Falls, NY	468, 99th St.	14304	1155-1507	038-78	111
			Niagara Falls, NY	460, 99th St.	14304	0950-1221	040-78	85
			Niagara Falls, NY	454, 99th St.	14304	0945-1305	039-78	T (334)
			Niagara Falls, NY	440, 99th St.	14304	1038-1312	039-78	80
			Niagara Falls, NY	99th St. School	14304	0845-1725	040-78	59
			Niagara Falls, NY	93rd St. School	14304	0830-1460	039-78	T (83)
			Niagara Falls, NY	93rd St. School	14304	0830-1640	040-78	73
II	dibromomethane	74-95-3	Paterson, NJ	12th St. & 4th Ave.	07524	1231-1313	082-76	130
			Edison, NJ	Top of KB Mound	08817	1506-1517	085-76	63,000
			E. Brunswick, NJ	Tower Marina	08816	1607-1737	181-76	42
II	1-chloro-2-bromoethane	107-04-0	Edison, NJ	Parkland	08817	1247-1323	084-76	25,000
			Edison, NJ	Parkland	08817	1647-1725	084-76	5,000
			Edison, NJ	Top of KB Mound	08817	1506-1517	085-76	27,000
II	1,1,2-trichloroethane	79-00-5	Edison, NJ	Parkland	08817	1247-1323	084-76	17,571
			Edison, NJ	Top of KB Mound	08817	1506-1517	085-76	11,435
			Edison, NJ	N. of Kin-Buc disposal site	08817	1207-1359	181-76	294
			Edison, NJ	N. of Kin-Buc	08817	1207-1359	191-76	294
			Sayreville, NJ	Off St. Stanislaus School Road	08872	1029-1229	182-76	3,500
			Edison, NJ	E. of Kin-Buc	08817	1006-1206	183-76	4,467
			Linden, NJ	Tremley Point Rd.	07036	1035-1135	315-77	200
II	trichloroethylene	79-01-6	Paterson, NJ	12th St. & 4th Ave.	07524	1231-1313	082-76	1,200
			Clifton, NJ	Dyer Ave. & Wheeler St.	07014	1528-1607	082-76	T

(continued)

Table D1 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	trichloroethylene (cont.)	79-01-6	Passaic, NJ	First St. & Essex St.	07055	1715-1754	082-76	T
			Hoboken, NJ	New County Rd. U.S. Post Office Depot	07030	1223-1302	083-76	T
			Staten Island, NY	Chelsea Rd. at Bloomfield Ave.	10314	1702-1739	083-76	T
			Bound Brook, NJ	Eastern Turnpike	08805	1732-1816	084-76	T
			Edison, NJ	Parkland	08817	1247-1323	084-76	93,000
			East Brunswick, NJ	Tower Marina School- use Road	08816	1647-1725	084-76	9,000
			Edison, NJ	land	08817	1647-1725	064-76	82,000
			East Brunswick, NJ	r Marina	08816	1115-1155	085-76	T
			East Brunswick, NJ	er Marina	08816	1508-1553	085-76	T
			Edison, NJ	p of KB Mound	08817	1506-1517	085-76	T
			Edison, NJ	Meadow Rd. (bet. Stauffer and KB)	08817	1620-1702	085-76	13,000
			Edison, NJ	N.J. Turnpike at Mill Rd.	08817	1048-1259	086-76	T
			Sayreville, NJ	St. Stanislaus School Road	08872	1049-1259	086-76	T
			East Brunswick, NJ	Tower Marina	08816	1207-1359	181-76	T (131)
			Edison, NJ	Meadow Road	08817	1206-1355	181-76	210
			Edison, NJ	N. of KB disposal site	08817	1207-1359	181-76	1,315
			Edison, NJ	N. of Kin-Buc	08817	1207-1359	181-76	10,052
			E. Brunswick, NJ	Tower Marina	08816	1607-1737	181-76	4,947
			Edison, NJ	Meadow Rd.	08817	1607-1737	181-76	4,500
			Edison, NJ	E. of Kin-Buc	08817	1607-1737	181-76	5,263
			Edison, NJ	E. of KB disposal site	08817	1607-1737	181-76	T (178)
			Sayreville, NJ	Off St. Stanislaus School Road	08872	1029-1229	182-76	3,737
			Edison, NJ	Meadow Road	08817	1030-1230	182-76	T (178)

(continued)

Table D1 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	trichloroethylene (cont.)	79-01-6	Edison, NJ	Meadow Rd.	08817	1029-1229	182-76	6,895
			Edison, NJ	W. of Kin-Buc disposal site	08817	1029-1229	182-76	10,315
			East Brunswick, NJ	Tower Marina	08816	1457-1646	182-76	T
			Edison, NJ	Meadow Rd.	08817	1458-1646	182-76	394
			Edison, NJ	NE of Kin-Buc disposal site	08817	1457-1648	182-76	T (214)
			East Brunswick, NJ	Tower Marina	08816	1006-1206	183-76	T (132)
			Edison, NJ	Meadow Rd.	08817	1006-1206	183-76	T (132)
			Edison, NJ	On Kin-Buc disposal site	08817	1015-1038	183-76	18,940
			Edison, NJ	E. of Kin-Buc	08817	1006-1206	183-76	3,684
			East Brunswick, NJ	Tower Marina	08816	1425-1625	182-76	T (132)
			Edison, NJ	N. of Kin-Buc disposal site	08817	1457-1646	182-76	5,289
			Edison, NJ	Meadow Rd.	08817	1425-1625	183-76	T (132)
			Edison, NJ	On Kin-Buc disposal site	08817	1444-1458	183-76	T (263)
			Edison, NJ	E. of Kin-Buc	08817	1425-1625	183-76	10,606
			Linden, NJ	Tremley Point Road upwind N.	07036	1225-1445	172-77	T
			Linden, NJ	Tremley Point Road	07036	1228-1445	172-77	139
			Linden, NJ	Off Tremley Point Rd.	07036	1226-1445	172-77	11
			Linden, NJ	Off Tremley Point Rd.	07036	1227-1445	172-77	6
			Linden, NJ	Off Tremley Point Rd.	07036	1603-1045	172-3-77	8
			Linden, NJ	Off Tremley Point Rd.	07036	1535-1045	172-3-77	2
			Linden, NJ	Off Tremley Point Rd.	07036	1540-1045	172-3-77	242
			Linden, NJ	Off Tremley Point Rd.	07036	1530-1045	172-3-77	25
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	17
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	T
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	T
			Deepwater, NJ	Close Salem Canal	08023	1612-1833	174-77	4
			Deepwater, NJ	Off U.S. Route 130	08023	1800-1120	174-5-77	56

(continued)

Table D1 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	trichloroethylene (cont.)	79-01-6	Deepwater, NJ	Off U.S. Route 130	18023	1125-1325	175-77	5
			Burlington, NJ	Burlington Ave.	08016	1545-1645	262-77	T (92)
			Bridgeport, NJ	Logan Township	08014	1532-1642	265-77	T (77)
			Bridgeport, NJ	Off High Hill Rd.	08014	1030-1130	265-77	T (312)
			Linden, NJ	Park Rd. with Brunswick	07036	1130-1230	314-77	130
			Linden, NJ	Off Turnpike (NE)	07036	1130-1240	314-77	240
			Linden, NJ	Off Turnpike	07036	1130-1230	314-77	129 + 31
			Linden, NJ	West Brook Dr.	07036	1458-1700	314-77	T (167)
			Linden, NJ	Parking Lot	07036	1520-1640	314-77	T (59)
			Linden, NJ	Rose Hill Cemetery in West Brook Dr.	07036	1040-1140	315-77	T (72)
			Linden, NJ	Tremley Point Rd.	07036	1035-1135	315-77	T (72)
			Staten Island, NY	Gulf Ave.	10303	1035-1135	315-77	T (73)
			Staten Island, NY	Forest Ave.	10303	1045-1200	316-77	T (76)
			Niagara Falls, NY	703, 97th St.	14304	1051-1409	040-78	1,224
			Niagara Falls, NY	753, 97th St.	14304	1035-1250	038-78	2,920
			Niagara Falls, NY	763, 97th St.	14304	1055-1450	038-78	270
			Niagara Falls, NY	771, 97th St.	14304	1130-1457	038-78	5,344
			Niagara Falls, NY	783, 97th St.	14304	1013-1935	039-78	1,374
			Niagara Falls, NY	476, 99th St.	14304	0923-1255	039-78	15,880
			Niagara Falls, NY	474, 99th St.	14304	0910-1216	040-78	151
			Niagara Falls, NY	468, 99th St.	14304	1155-1507	038-78	388
			Niagara Falls, NY	460, 99th St.	14304	0950-1221	040-78	122
			Niagara Falls, NY	454, 99th St.	14304	0945-1305	039-78	156
			Niagara Falls, NY	440 99th St.	14304	1038-1312	039-78	667
			Niagara Falls, NY	99th St. School Gym.	14304	0855-1655	039-78	T (116)
			Niagara Falls, NY	99th St. School	14304	0845-1725	040-78	238
			Niagara Falls, NY	93rd St. School	14304	0830-1460	039-78	295
			Niagara Falls, NY	93rd St. School	14304	0832-1642	039-78	T (100)
			Niagara Falls, NY	93rd St. School	14304	0830-1640	040-78	126

(continued)

Table D1 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	1,2-dibromoethane	106-93-4	Sayreville, NJ	Off St. Stanislaus School Rd.	08872	1029-1229	182-76	591
			Edison, NJ	W. of Kin-Buc disposal site	08817	1029-1229	182-76	T
			Edison, NJ	N of Kin-Buc	08817	1457-1646	182-76	535
			Edison, NJ	On Kin-Buc disposal site	08817	1015-1038	183-76	757
			Deepwater, NJ	Off U.S. Route 130	08023	1600-1807	174-77	T
II	tetrachloroethylene	127-18-4	Paterson, NJ	12th St. & 4th Ave.	07524	1231-1313	082-76	T
			Clifton, NJ	Dyer Ave. & Wheeler St.	07104	1528-1607	082-76	T
			Passaic, NJ	First St. & Essex St.	07055	1715-1754	082-76	T
			Hoboken, NJ	New County Rd.	07030	1223-1302	083-76	T
			Newark, NJ	U.S. Post Office Depot 552 Doremus Ave.	07105	1400-1438	083-76	T
			Staten Island, NY	Chelsea Rd. at Bloomfield Ave.	10314	1702-1739	083-76	T
			Fords, NJ		08863	1559-1643	084-76	T
			Bound Brook, NJ	Eastern Turnpike	08805	1732-1816	084-76	T
			Edison, NJ	Parkland	08817	1247-1323	084-76	T
			East Brunswick, NJ	Tower Marina Schoolhouse Rd.	08816	1647-1725	084-76	T
			Edison, NJ	Parkland	08817	1647-1725	084-76	26,000
			East Brunswick, NJ	Tower Marina	08816	1115-1155	085-76	T
			East Brunswick, NJ	Tower Marina	08816	1508-1553	085-76	T
			Edison, NJ	Top of KB Mound	08817	1506-1517	085-76	142,000
			Edison, NJ	Meadow Rd. (bet. Stauffer and KB)	08817	1620-1702	085-76	T
			Edison, NJ	N.J. Turnpike at Mill Road	08817	1048-1259	086-76	8,000
			Sayreville, NJ	St. Stanislaus School Road	08872	1049-1259	086-76	60,000

(continued)

Table D1 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m³)
II	tetrachloroethylene (cont.)	127-18-4	East Brunswick, NJ	Tower Marina	08816	1207-1359	181-76	354
			Edison, NJ	Meadow Rd.	08817	1206-1355	181-76	1,527
			Edison, NJ	N. of KB disposal site	08817	1207-1359	181-76	T (45)
			Edison, NJ	N. of Kin-Buc	08817	1207-1359	181-76	T (45)
			East Brunswick, NJ	Tower Marina	08816	1607-1737	181-76	1,187
			Edison, NJ	Meadow Rd.	08817	1607-1737	181-76	T (49)
			Edison, NJ	E. of Kin-Buc	08817	1607-1737	181-76	2,896
			Edison, NJ	E. of KB disposal site	08817	1607-1737	181-76	T (49)
			Sayreville, NJ	Off St. Stanislaus School Rd.	08872	1029-1229	182-76	T (49)
			Edison, NJ	Meadow Rd.	08817	1030-1230	182-76	291
			Edison, NJ	Meadow Rd.	08817	1029-1229	182-76	2,847
			Edison, NJ	W. of Kin-Buc disposal site	08817	1029-1229	182-76	T (49)
			East Brunswick, NJ	Tower Marina	08816	1457-1646	182-76	2,722
			Edison, NJ	Meadow Rd.	08817	1458-1646	182-76	527
			Edison, NJ	NE of Kin-Buc disposal site	08817	1457-1648	182-76	1,389
			East Brunswick, NJ	Tower Marina	08816	1006-1206	183-76	1,360
			Edison, NJ	Meadow Rd.	08817	1006-1206	183-76	152
			Edison, NJ	On Kin-Buc disposal site	08817	1015-1038	183-76	25,560
			Edison, NJ	E. of Kin-Buc	08817	1006-1206	183-76	34,632
			East Brunswick, NJ	Tower Marina	08816	1425-1625	183-76	694
			Edison, NJ	N. of Kin-Buc disposal site	08817	1457-1646	182-76	9,173
			Edison, NJ	Meadow Road	08817	1425-1625	183-76	1,229
			Edison, NJ	On Kin-Buc disposal site	08817	1444-1458	183-76	394,000
			Edison, NJ	E. of Kin-Buc	08817	1425-1625	183-76	12,500
			Linden, NJ	Tremley Point Road upwind N.	07036	1225-1445	172-77	

(continued)

Table D1 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	tetrachloroethylene (cont.)	127-18-4	Linden, NJ	Tremley Point Road	07036	1228-1445	172-77	
			Linden, NJ	Off Tremley Point Rd.	07036	1226-1445	172-77	
			Linden, NJ	Off Tremley Point Rd.	07036	1227-1445	172-77	
			Linden, NJ	Off Tremley Point Rd.	07036	1603-1045	172-3-77	
			Linden, NJ	Off Tremley Point Rd.	07036	1535-1045	172-3-77	
			Linden, NJ	Off Tremley Point Rd.	07036	1540-1045	172-3-77	
			Linden, NJ	Off Tremley Point Rd.	07036	1530-1045	172-3-77	
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	
			Deepwater, NJ	Close Salem Canal	08023	1612-1833	174-77	6
			Deepwater, NJ	Off U.S. Route 130	08023	1602-1818	174-77	13
			Deepwater, NJ	Off U.S. Route 130	08023	1600-1807	174-77	T
			Deepwater, NJ	Off U.S. Route 130	08023	1554-1754	174-77	60
			Deepwater, NJ	Close Salem Canal	08023	1837-1050	174-5-77	69
			Deepwater, NJ	Off U.S. Route 130	08023	1800-1120	174-5-77	218
			Deepwater, NJ	Close Salem Canal	08023	1055-1255	175-77	22
			Deepwater, NJ	Off U.S. Route 130	08023	1107-1307	175-77	29
			Deepwater, NJ	Off U.S. Route 130	08023	1125-1325	175-77	57
			Burlington, NJ	Burlington Ave.	08016	1545-1645	262-77	185 ± 56
			Bridgeport, NJ	Logan Township	08014	1532-1642	265-77	276 ± k69
			Bridgeport, NJ	Off High Hill Road	08014	1030-1130	265-77	T (189)
			Linden, NJ	Park Rd. with Brunswick	07036	1130-1230	314-77	321
			Linden, NJ	Off Turnpike (NE)	07036	1130-1240	314-77	960
			Linden, NJ	Off Turnpike	07036	1130-1230	314-77	
			Linden, NJ	West Brook Dr.	07036	1458-1700	314-77	52
			Linden, NJ	Parking Lot	07036	1520-1640	314-77	78
			Linden, NJ	Rose Hill Cemetery in West Brook Dr.	07036	1040-1140	315-77	84
			Linden, NJ	Tremley Point Rd.	07036	1035-1135	315-77	T (106)

(continued)

Table D1 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	tetrachloroethylene (cont.)	127-18-4	Staten Island, NY	Gulf Ave.	10303	1035-1135	315-77	T (104)
			Linden, NJ	Gibbons Ave. & Wood	07036	1530-1630	315-77	
			Staten Island, NY	Forest Ave.	10303	1045-1200	316-77	T (63)
			Staten Island, NY	Off I-278	10303	1051-1153	316-77	T (179)
			Niagara Falls, NY	703, 97th St.	14304	1051-1409	040-78	6,349
			Niagara Falls, NY	753, 97th St.	14304	1035-1250	038-78	10,652
			Niagara Falls, NY	763, 97th St.	14304	1055-1450	038-78	3,342
			Niagara Falls, NY	779, 97th St.	14304	1130-1457	038-78	5,386
			Niagara Falls, NY	783, 97th St.	14304	1013-1935	039-78	51,992
			Niagara Falls, NY	476, 99th St.	14304	0923-1255	039-78	37,442
			Niagara Falls, NY	474, 99th St.	14304	0910-1216	040-78	304
			Niagara Falls, NY	468, 99th St.	14304	1155-1507	038-78	109
			Niagara Falls, NY	460, 99th St.	14304	0950-1221	040-78	151
			Niagara Falls, NY	454, 99th St.	14304	0945-1305	039-78	183
			Niagara Falls, NY	440, 99th St.	14304	1038-1312	039-78	396
			Niagara Falls, NY	99th St. School	14304	0845-1725	040-78	294
			Niagara Falls, NY	93rd St. School	14304	0830-1460	039-78	222
			Niagara Falls, NY	93rd St. School	14304	0832-1642	039-78	T (155)
			Niagara Falls, NY	934d St. School	14304	0830-1640	040-78	625
II	chlorobenzene	108-90-7	Paterson, NJ	12th St. & 4th Ave.	07524	1231-1313	083-76	T
			Clifton, NJ	Dyer Ave. & Wheeler St.	07014	1528-1607	082-76	T
			Hoboken, NJ	New County Rd. U.S. Post Office Depot	07030	1223-1302	083-76	T
			Newark, NJ	552 Doremus Ave.	07105	1400-1438	083-76	T
			Staten Island, NY	Chelsea Road at Bloomfield Ave.	10314	1702-1739	083-76	T
			Fords, NJ		08863	1559-1643	084-76	T
			Bound Brook, NJ	Eastern Turnpike	08805	1732-1816	084-76	20,000
			Edison, NJ	Parkland	08817	1247-1323	084-76	50,000
			East Brunswick, NJ	Tower Marina Schoolhouse Road	08816	1647-1725	084-76	T
			Edison, NJ	Parkland	08817	1647-1725	084-76	T

(continued)

Table D1 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	chlorobenzene (cont.)	108-90-7	East Brunswick, NJ	Tower Marina	08816	1115-1155	085-76	T
			East Brunswick, NJ	Tower Marina	08816	1508-1553	085-76	T
			Edison, NJ	Top of KB Mound	08817	1506-1517	085-76	T
			Edison, NJ	Meadow Rd. (bet. Stauffer and KB)	08817	1620-1702	085-76	T
			Edison, NJ	N.J. Turnpike at Mill Road	08817	1048-1259	086-76	T
			Sayreville, NJ	St. Stanislaus School Road	08872	1049-1259	086-76	4,000
			East Brunswick, NJ	Tower Marina	08816	1207-1359	181-76	170
			Edison, NJ	Meadow Rd.	08817	1206-1355	181-76	112
			Edison, NJ	N. of KB disposal site	08817	1207-1359	181-76	T (82)
			Edison, NJ	N. of Kin-Buc	08817	1207-1359	181-76	507
			East Brunswick, NJ	Tower Marina	08816	1607-1737	181-76	T (135)
			Edison, NJ	Meadow Rd.	08817	1607-1737	181-76	T (85)
			Edison, NJ	E. of Kin-Buc	08817	1607-1737	181-76	T (82)
			Edison, NJ	E. of KB disposal site	08817	1607-1737	181-76	1,127
			Sayreville, NJ	Off St. Stanislaus School Road	08872	1029-1229	182-76	T (60)
			Edison, NJ	Meadow Road	08817	1030-1230	182-76	167
			Edison, NJ	Meadow Road	08817	1029-1229	182-76	480
			Edison, NJ	W. of Kin-Buc disposal site	08817	1029-1229	182-76	1,807
			East Brunswick, NJ	Tower Marina	08816	1457-1646	182-76	1,127
			Edison, NJ	Meadow Rd.	08817	1458-1646	182-76	T (60)
			Edison, NJ	NE of Kin-Buc disposal site	08817	1457-1648	182-76	610
			East Brunswick, NJ	Tower Marina	08816	1006-1206	183-76	T (132)
			Edison, NJ	Meadow Road	08817	1006-1206	183-76	T (74)
			Edison, NJ	On Kin-Buc disposal site	08816	1015-1038	183-76	T (74)
			Edison, NJ	E. of Kin-Buc	08817	1006-1206	183-76	12,791
			East Brunswick, NJ	Tower Marina	08816	1425-1625	183-76	T (77)

(continued)

Table D1 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	chlorobenzene (cont.)	108-90-7	Edison, NJ	N. of Kin-Buc disposal site	08817	1457-1646	182-76	607
			Edison, NJ	Meadow Rd.	08817	1425-1625	183-76	T (83)
			Edison, NJ	On Kin-Buc disposal site	08817	1444-1458	183-76	2,656
			Edison, NJ	E. of Kin-Buc	08817	1425-1625	183-76	918
			Linden, NJ	Tremlev Point Road upwind N.	07036	1225-1445	172-77	3
			Linden, NJ	Tremley Point Rd.	07036	1228-1445	172-77	5
			Linden, NJ	Off Tremley Point Rd.	07036	1226-1445	172-77	123
			Linden, NJ	Off Tremley Point Rd.	07036	1227-1445	172-77	272
			Linden, NJ	Off Tremley Point Rd.	07036	1603-1045	172-3-77	11
			Linden, NJ	Off Tremley Point Rd.	07036	1535-1045	172-3-77	4
			Linden, NJ	Off Tremley Point Rd.	07036	1540-1045	172-3-77	30
			Linden, NJ	Off Tremley Point Rd.	07306	1530-1045	172-3-77	222
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	T
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	T
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	T
			Deepwater, NJ	Close Salem Canal	08023	1612-1833	174-77	14
			Deepwater, NJ	Off U.S. Route 130	08023	1602-1818	174-77	15
			Deepwater, NJ	Off U.S. Route 130	08023	1600-1807	174-77	11
			Deepwater, NJ	Off U.S. Route 130	08023	1554-1754	174-77	512
			Deepwater, NJ	Close Salem Canal	08023	1837-1050	174-5-77	55
			Deepwater, NJ	Off U.S. Route 130	08023	1800-1120	174-5-77	305
			Deepwater, NJ	Close Salem Canal	08023	1055-1255	175-77	25
			Deepwater, NJ	Off U.S. Route 130	08023	1107-1307	175-77	17
			Deepwater, NJ	Off U.S. Route 130	08023	1115-1315	175-77	12
			Deepwater, NJ	Off U.S. Route 130	08023	1125-1325	175-77	669
			Burlington, NJ	Burlington Ave.	08016	1545-1645	262-77	T (278)
			Bridgeport, NJ	Logan Township	08014	1532-1642	265-77	T (231)
			Bridgeport, NJ	Off High Hill Rd.	08014	1030-1130	265-77	T (405)
			Linden, NJ	Park Rd. with Brunswick	07036	1130-1230	314-77	63

(continued)

Table D1 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	chlorobenzene (cont.)	108-90-7	Linden, NJ	Off Turnpike	07036	1130-1230	314-77	58
			Linden, NJ	West Brook Dr.	07036	1458-1700	314-77	T (187)
			Linden, NJ	Parking Lot	07036	1520-1640	314-77	T (126)
			Linden, NJ	Rose Hill Cemetery in West Brook Dr.	07306	1040-1140	315-77	T (158)
			Linden, NJ	Tremley Point Rd.	07036	1035-1135	315-77	T (227)
			Staten Island, NY	Forest Ave.	10303	1045-1200	316-77	T (135)
			Staten Island, NY	Off I-278	10303	1051-1153	316-77	T (385)
			Niagara Falls, NY	703, 97th St.	14304	1051-1409	040-78	1,940
			Niagara Falls, NY	753, 97th St.	14304	1035-1250	038-78	4,232
			Niagara Falls, NY	763, 97th St.	14304	1055-1450	038-78	1,000
			Niagara Falls, NY	779, 97th St.	14304	1130-1457	038-78	3,674
			Niagara Falls, NY	783, 97th St.	14304	1013-1935	039-78	2,778
			Niagara Falls, NY	474, 99th St.	14304	0910-1216	040-78	68
			Niagara Falls, NY	468, 99th St.	14304	1155-1507	038-78	25
			Niagara Falls, NY	454, 99th St.	14304	0945-1305	039-78	35
			Niagara Falls, NY	440, 99th St.	14304	1038-1312	039-78	75
			Niagara Falls, NY	99th St. School	14304	0845-1725	040-78	T (319)
			Niagara Falls, NY	93rd St. School	14304	0830-1460	039-78	T (334)
			Niagara Falls, NY	93rd St. School	14304	0830-1640	040-78	T (197)
II	1,1,2,2-tetra-chloroethane	79-34-5	Sayreville, NJ	St. Stanislaus School Rd.	08872	1049-1259	086-76	
			Edison, NJ	E. of Kin-Buc	08817	1006-1206	183-76	22,785
			Edison, NJ	On Kin-Buc disposal site	08817	1444-1458	183-76	15,000
			Edison, NJ	E. of Kin-Buc	08817	1425-1625	183-76	1,389
			Linden, NJ	Tremley Point Rd.	07036	1035-1135	315-77	91
II	chlorotoluene isomer(s)	108-41-8 or 95-49-8 or 106-43-4	Edison, NJ	Parkland	08817	1247-1323	084-76	
			Edison, NJ	Meadow Rd. (bet. Stauffer and KB)	08817	1620-1702	085-76	
			Edison, NJ	Meadow Rd.	08817	1206-1355	181-76	
			Edison, NJ	Meadow Rd.	08817	1607-1737	181-76	

(continued)

Table D1 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	chlorotoluene isomer(s) (cont.)	108-41-8 or 95-49-8 or 106-43-4	Edison, NJ	E. of Kin-Buc	08817	1607-1737	181-76	
			Edison, NJ	W. of Kin-Buc disposal site	08817	1029-1229	182-76	
			East Brunswick, NJ	Tower Marina	08816	1457-1646	182-76	
			Edison, NJ	Meadow Rd.	08817	1458-1646	182-76	
			Edison, NJ	Meadow Rd.	08817	1006-1206	183-76	
			Edison, NJ	E. of Kin-Buc	08817	1006-1206	183-76	
			Edison, NJ	N. of Kin-Buc disposal site	08817	1457-1646	182-76	
			Edison, NJ	Meadow Rd.	08817	1425-1625	183-76	
			Niagara Falls, NY	703, 97th St.	14304	1051-1409	040-78	2,552
			Niagara Falls, NY	703, 97th St.	14304	1051-1409	040-78	3,820
			Niagara Falls, NY	753, 97th St.	14304	1035-1250	038-78	14,990
			Niagara Falls, NY	763, 97th St.	14304	1055-1450	038-78	1,754
			Niagara Falls, NY	779, 97th St.	14304	1130-1457	038-78	4,586
			Niagara Falls, NY	783, 97th St.	14304	1013-1935	039-78	3,022
			Niagara Falls, NY	476, 99th St.	14304	0923-1255	039-78	226, 514
			Niagara Falls, NY	476, 99th St.	14304	0923-1255	039-78	223, 042
			Niagara Falls, NY	474, 99th St.	14304	0910-1216	040-78	4,142
			Niagara Falls, NY	468, 99th St.	14304	1155-1507	038-78	590
			Niagara Falls, NY	460, 99th St.	14304	0950-1221	040-78	639
			Niagara Falls, NY	454, 99th St.	14304	0945-1305	039-78	581
			Niagara Falls, NY	440, 99th St.	14304	1038-1312	039-78	25
			Niagara Falls, NY	99th St. School	14304	0845-1725	040-78	1,013
			Niagara Falls, NY	99th St. School	14304	0845-1725	040-78	296
			Niagara Falls, NY	93rd St. School	14304	0830-1460	039-78	1,067
			Niagara Falls, NY	93rd St. School	14304	0832-1642	039-78	1,729
			Niagara Falls, NY	93rd St. School	14304	0830-1640	040-78	645
II	pentachloroethane	76-01-7	Linden, NJ	Tremley Point Rd.	07036	1035-1135	315-77	76
II	m-dichlorobenzene	541-73-1	Clifton, NJ	Dyer Ave. & Wheeler St.	07014	0528-1607	082-76	T (33)
			Hoboken, NJ	New County Rd. U.S. Post Office Depot	07030	1223-1302	083-76	T (33)

(continued)

Table D1 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	*m*-dichlorobenzene (cont.)	541-73-1	Newark, NJ	552 Doremus Ave.	07105	1400-1438	083-76	T (33)
			Bound Brook, NJ	Eastern Turnpike	08805	1732-1816	084-76	T (33)
			Edison, NJ	Parkland	08817	1247-1323	084-76	7,000
			East Brunswick, NJ	Tower Marina Schoolhouse Rd.	08816	1647-1725	084-76	T (33)
			East Brunswick, NJ	Tower Marina	08816	1115-1155	085-76	143
			East Brunswick, NJ	Tower Marina	08816	1508-1553	085-76	T
			Edison, NJ	Top of KB Mound	08817	1506-1517	085-77	26,583
			Edison, NJ	N.J. Turnpike at Mill Rd.	08817	1048-1259	086-76	T
			Sayreville, NJ	St. Stanislaus School Road	08872	1049-1259	086-76	126
			East Brunswick, NJ	Tower Marina	08816	1207-1359	181-76	205
			Edison, NJ	Meadow Rd.	08817	1206-1355	181-76	33,783
			Edison, NJ	N. of KB disposal site	08817	1207-1359	181-76	244
			Edison, NJ	N. of Kin-Buc	08817	1207-1359	181-76	T
			East Brunswick, NJ	Tower Marina	08816	1607-1737	181-76	T (90)
			Edison, NJ	Meadow Rd.	08817	1607-1737	181-76	205
			Edison, NJ	E. of Kin-Buc	08817	1607-1737	181-76	T
			Edison, NJ	E. of KB disposal site	08817	1607-1737	181-76	T
			Sayreville, NJ	Off St. Stanislaus School Road	08872	1029-1229	182-76	T (72)
			Edison, NJ	Meadow Rd.	08817	1030-1230	182-76	T (50)
			Edison, NJ	Meadow Rd.	08817	1029-1229	182-76	376
			Edison, NJ	W. of Kin-Buc	08817	1029-1229	182-76	895
			Edison, NJ	Meadow Rd.	08817	1458-1646	182-76	T (40)
			Edison, NJ	NE of Kin-Buc disposal site	08817	1457-1648	182-76	T (54)
			East Brunswick, NJ	Tower Marina	08816	1006-1206	183-76	T (88)
			Edison, NJ	Meadow Rd.	08817	1006-1206	183-76	T (49)
			Edison, NJ	On Kin-Buc disposal site	08817	1015-1038	183-76	789

(continued)

Table D1 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	m-dichlorobenzene (cont.)	541-73-1	Edison, NJ	E. of Kin-Buc	08817	1006-1206	183-76	839
			East Brunswick, NJ	Tower Marina	08816	1425-1625	182-76	659
			Edison, NJ	N. of Kin-Buc disposal site	08817	1457-1646	182-76	410
			Edison, NJ	Meadow Rd.	08817	1425-1625	182-76	T (55)
			Edison, NJ	On Kin-Buc disposal site	08817	1444-1458	183-76	3,526
			Edison, NJ	E. of Kin-Buc	08817	1425-1625	183-76	T (48)
			Linden, NJ	Tremley Point Rd. upwind N.	07036	1225-1445	172-77	T
			Linden, NJ	Tremley Point Rd.	07036	1228-1445	172-77	30
			Linden, NJ	Off Tremley Point Rd.	07036	1227-1445	172-77	1
			Linden, NJ	Off Tremley Point Rd.	07036	1535-1045	172-3-77	T
			Linden, NJ	Off Tremley Point Rd.	07036	1540-1045	172-3-77	13
			Linden, NJ	Off Tremley Point Rd.	07036	1530-1045	172-3-77	T
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	T
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	T
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	T
			Deepwater, NJ	Close Salem Canal	08023	1612-1833	174-77	19
			Deepwater, NJ	Off U.S. Route 130	08023	1602-1818	174-77	12
			Deepwater, NJ	Off U.S. Route 130	08023	1554-1754	174-77	1,240
			Deepwater, NJ	Close Salem Canal	08023	1837-1050	174-5-77	21
			Deepwater, NJ	Off U.S. Route 130	08023	1800-1120	174-5-77	T
			Deepwater, NJ	Close Salem Canal	08023	1055-1255	175-77	101
			Deepwater, NJ	Off U.S. Route 130	08023	1107-1307	175-77	404
			Deepwater, NJ	Off U.S. Route 130	08023	1115-1315	175-77	
			Deepwater, NJ	Off U.S. Route 130	08023	1125-1325	175-77	14
			Burlington, NJ	Burlington Ave.	08016	1545-1645	262-77	T (185)
			Bridgeport, NJ	Logan Township	08014	1532-1642	265-77	T (154)
			Bridgeport, NJ	Off High Hill Rd.	08014	1030-1130	265-77	T (286)
			Linden, NJ	Park Rd. with Brunswick	07036	1130-1230	314-77	T (217)
			Linden, NJ	Off Turnpike (NE)	07036	1130-1240	314-77	78
			Linden, NJ	Off Turnpike	07036	1130-1230	314-77	T (169)
			Linden, NJ	West Brook Dr.	07036	1458-1700	314-77	T (125)

(continued)

Table D1 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	m-dichlorobenzene (cont.)	541-73-1	Linden, NJ	Parking Lot	07036	1520-1640	314-77	T (118)
			Linden, NJ	Rose Hill Cemetery in West Brook Dr.	07036	1040-1140	315-77	T (105)
			Linden, NJ	Tremley Point Rd.	07036	1035-1135	315-77	T (151)
			Staten Island, NY	Gulf Ave.	10303	1035-1135	315-77	T (149)
			Staten Island, NY	Forest Ave.	10303	1045-1200	316-77	T (90)
			Staten Island, NY	Off I-278	10303	1051-1153	316-77	T (256)
II	o-dichlorobenzene	95-50-1	Edison, NJ	Parkland	08817	1247-1323	084-76	6320
			East Brunswick, NJ	Tower Marina Schoolhouse Road	08816	1647-1725	084-76	T (33)
			Bound Brook, NJ	Eastern Turnpike	08805	1732-1816	084-76	T (33)
			East Brunswick, NJ	Tower Marina	08816	1115-1155	085-76	250
			East Brunswick, NJ	Tower Marina	08816	1508-1553	085-76	T
			Edison, NJ	Top of KB Mound	08817	1506-1517	085-76	12,433
			Edison, NJ	NJ Turnpike at Mill Road	08817	1048-1259	086-76	58
			Sayreville, NJ	St. Stanislaus School Road	08872	1049-1259	086-76	T
			Edison, NJ	Meadow Rd.	08817	1206-1355	181-76	1,873
			Edison, NJ	N. of Kin Buc	08817	1207-1359	181-76	77
			Edison, NJ	NE of Kin-Buc disposal site	08817	1457-1648	182-76	T (54)
			Edison, NJ	Meadow Rd.	08817	1607-1737	181-76	T (57)
			Edison, NJ	Meadow Rd.	08817	1029-1229	182-76	341
			Edison, NJ	W. of Kin-Buc disposal site	08817	1029-1229	182-76	942
			East Brunswick, NJ	Tower Marina	08816	1457-1646	182-76	
			Edison, NJ	Meadow Rd.	08817	1006-1206	183-76	T (49)
			Edison, NJ	On Kin-Buc disposal site	08817	1015-1038	183-76	1,526
			Edison, NJ	E. of Kin-Buc	08817	1006-1206	183-76	5,087
			East Brunswick, NJ	Tower Marina	08816	1425-1625	183-76	1,500

(continued)

Table D1 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	o-dichlorobenzene (cont.)	95-50-1	Edison, NJ	N. of Kin-Buc disposal site	08817	1457-1646	182-76	150
			Edison, NJ	Meadow Rd.	08817	1425-1625	183-76	T (55)
			Edison, NJ	On Kin-Buc	08817	1444-1458	183-76	9,899
			Edison, NJ	E. of Kin-Buc	08817	1425-1625	183-76	300
			Linden, NJ	Tremley Point Road upwind N.	07036	1225-1445	172-77	2
			Linden, NJ	Off Tremley Point Rd.	07036	1530-1045	172-3-77	74
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	20
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	T
			Deepwater, NJ	Close Salem Canal	08023	1612-1833	174-77	17
			Deepwater, NJ	Off U.S. Route 130	08023	1602-1818	174-77	554
			Deepwater, NJ	Off U.S. Route 130	08023	1554-1754	174-77	51
			Deepwater, NJ	Close Salem Canal	08023	1837-1050	174-5-77	25
			Deepwater, NJ	Close Salem Canal	08023	1055-1255	175-77	T
			Deepwater, NJ	Off U.S. Route 130	08023	1115-1315	175-77	T
			Deepwater, NJ	Off U.S. Route 130	08023	1125-1325	175-77	1,319
			Burlington, NJ	Burlington Ave.	08016	1545-1645	262-77	T (185)
			Bridgeport, NJ	Logan Township	08014	1532-1642	265-77	T
			Linden, NJ	Park Rd. with Brunswick	07036	1130-1230	314-77	T (217)
			Linden, NJ	Off Turnpike (NE)	07036	1130-1240	314-77	T (133)
			Linden, NJ	Off Turnpike	07036	1130-1230	314-77	T (169)
			Linden, NJ	West Brook Dr.	07036	1458-1700	314-77	T (125)
			Linden, NJ	Parking Lot	07036	1520-1640	314-77	89
			Linden, NJ	Rose Hill Cemetery in West Brook Dr.	07036	1040-1140	315-77	T (105)
			Linden, NJ	Tremley Point Rd.	07036	1035-1135	315-77	T (151)
			Staten Island, NY	Gulf Ave.	10303	1035-1135	315-77	T (149)
			Staten Island, NY	Forest Ave.	10303	1045-1200	316-77	T (90)
			Staten Island, NY	Off I-278	10303	1051-1153	316-77	T (256)

(continued)

Table D1 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	dichlorobenzene isomer(s)	541-73-1 or 95-50-1 or 106-46-7	Fords, NJ		08863	1559-1643	084-76	T
			Bound Brook, NJ	Eastern Turnpike	08805	1732-1816	084-76	T
			Niagara Falls, NY	93rd St. School	14304	0830-1460	039-78	2,044
			Niagara Falls, NY	93rd St. School	14304	0830-1460	039-78	260
			Niagara Falls, NY	93rd St. School	14304	0832-1642	039-78	4,400
			Niagara Falls, NY	93rd St. School	14304	0832-1642	039-78	2,442
			Niagara Falls, NY	93rd St. School	14304	0830-1640	040-78	154
			Niagara Falls, NY	93rd St. School	14304	0830-1640	040-78	76
			Niagara Falls, NY	93rd St. School	14304	0830-1640	040-78	418
			Niagara Falls, NY	779, 97th St.	14304	1130-1457	038-78	2,940
			Niagara Falls, NY	779, 97th St.	14304	1130-1457	038-78	2,105
			Niagara Falls, NY	779, 97th St.	14304	1130-1457	038-78	3,654
			Niagara Falls, NY	783, 97th St.	14304	1013-1935	039-78	8,914
			Niagara Falls, NY	783, 97th St.	14304	1013-1935	039-78	6,024
			Niagara Falls, NY	783, 97th St.	14304	1013-1935	039-78	2,294
			Niagara Falls, NY	476, 99th St.	14304	0923-1255	039-78	100,476
			Niagara Falls, NY	476, 99th St.	14304	0923-1255	039-78	51, 600
			Niagara Falls, NY	476, 99th St.	14304	0923-1255	039-78	34,686
			Niagara Falls, NY	474, 99th St.	14304	0910-1216	040-78	2,172
			Niagara Falls, NY	474, 99th St.	14304	0910-1216	040-78	31
			Niagara Falls, NY	474, 99th St.	14304	0910-1216	040-78	45
			Niagara Falls, NY	468, 99th St.	14304	1155-1507	038-78	109
			Niagara Falls, NY	468, 99th St.	14304	1155-1507	038-78	T (29)
			Niagara Falls, NY	460, 99th St.	14304	0950-1221	040-78	386
			Niagara Falls, NY	460, 99th St.	14304	0950-1221	040-78	22
			Niagara Falls, NY	454, 99th St.	14304	0945-1305	039-78	7,863
			Niagara Falls, NY	440, 99th St.	14304	1038-1312	039-78	217
			Niagara Falls, NY	440, 99th St.	14304	1038-1312	039-78	53
			Niagara Falls, NY	99th St. School	14304	0845-1725	040-78	238
			Niagara Falls, NY	99th St. School	14304	0845-1725	040-78	T (170)
			Niagara Falls, NY	93rd St. School	14304	0832-1642	039-78	T (167)
			Niagara Falls, NY	93rd St. School	14304	0832-1642	039-78	167
			Niagara Falls, NY	93rd St. School	14304	0830-1640	040-78	722
			Niagara Falls, NY	93rd St. School	14304	0830-1640	040-78	295

(continued)

Table D1 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	chlorobenzaldehyde isomer	587-04-2	Niagara Falls, NY	753, 97th St.	14304	1035-1250	083-78	180
		or	Niagara Falls, NY	779, 97th St.	14304	1130-1457	038-78	746
		104-88-1	Niagara Falls, NY	783, 97th St.	14304	1013-1935	039-78	34
		or	Niagara Falls, NY	476, 99th St.	14304	0923-1255	039-78	4,058
		89-98-5	Niagara Falls, NY	474, 99th St.	14304	0910-1216	040-78	T (18)
			Niagara Falls, NY	468, 99th St.	14304	1155-1507	038-78	T (18)
II	bromotoluene isomer (m or p)	95-46-5	Edison, NJ	Meadow Rd.	08817	1206-1355	181-76	1,873
		or	Edison, NJ	Meadow Rd.	08817	1458-1646	182-76	507
		100-39-0	Edison, NJ	Meadow Rd.	08817	1006-1206	183-76	472
		or	Edison, NJ	Meadow Rd.	08817	1425-1625	183-76	472
		591-17-3	Niagara Falls, NY	703, 97th St.	14304	1051-1409	040-78	25
		or	Niagara Falls, NY	753, 97th St.	14304	1035-1250	038-78	T (53)
		106-38-7	Niagara Falls, NY	779, 97th St.	14304	1130-1457	038-78	134
			Niagara Falls, NY	783, 97th St.	14304	1013-1935	039-78	66
			Niagara Falls, NY	476, 99th St.	14304	0923-1255	039-78	4,372
II	dichlorotoluene isomer(s)		Fords, NJ		08863	1559-1643	084-76	T
			Edison, NJ	Meadow Rd. (bet. Stauffer and KB)	08817	1620-1702	085-76	
			Deepwater, NJ	Off U.S. Route 130	08023	1554-1754	174-77	59
			Deepwater, NJ	Off U.S. Route 130	08023	1800-1120	174-5-77	61
			Deepwater, NJ	Off U.S. Route 130	08023	1107-1307	175-77	107
			Deepwater, NJ	Off U.S. Route 130	08023	1125-1325	175-77	29
			Edison, NJ	Meadow Rd.	08817	1458-1646	182-76	
			Edison, NJ	Meadow Rd.	08817	1425-1625	183-76	
			Niagara Falls, NY	703, 97th St.	14304	1051-1409	040-78	8,836
			Niagara Falls, NY	703, 97th St.	14304	1051-1409	040-78	3,956
			Niagara Falls, NY	753, 97th St.	14304	1035-1250	038-78	20,926
			Niagara Falls, NY	753, 97th St.	14304	1035-1250	038-78	6,316
			Niagara Falls, NY	763, 97th St.	14304	1055-1450	038-78	86
			Niagara Falls, NY	763, 97th St.	14304	1055-1450	083-78	48
			Niagara Falls, NY	779, 97th St.	14304	1130-1457	038-78	5,240
			Niagara Falls, NY	779, 97th St.	14304	1130-1457	038-78	5,320

(continued)

Table D1 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	dichlorotoluene isomer(s) (cont.)		Niagara Falls, NY	779, 97th St.	14304	1130-1457	038-78	314
			Niagara Falls, NY	783, 97th St.	14304	1013-1935	039-78	7,428
			Niagara Falls, NY	783, 97th St.	14304	1013-1935	039-78	2,318
			Niagara Falls, NY	476, 99th St.	14304	0923-1255	039-78	158,628
			Niagara Falls, NY	476, 99th St.	14304	0923-1255	039-78	98,428
			Niagara Falls, NY	476, 99th St.	14304	0923-1255	039-78	109,872
			Niagara Falls, NY	474, 99th St.	14304	0910-1216	040-78	653
			Niagara Falls, NY	468, 99th St.	14304	1155-1507	038-78	74
			Niagara Falls, NY	99th St. School	14304	0845-1725	040-78	T (106)
II	benzyl chloride	100-44-7	Edison, NJ (bet. Stauffer and KB)	Meadow Rd.	08817	1620-1702	085-76	
			Edison, NJ	Meadow Rd.	08817	1030-1230	182-76	
			Edison, NJ	Meadow Rd.	08817	1458-1646	182-76	4,513
			Edison, NJ	Meadow Rd.	08817	1006-1206	183-76	6,560
			Edison, NJ	Meadow Rd.	08817	1425-1625	183-76	8,033
II	chloroaniline isomer		Bound Brook, NJ	Eastern Turnpike	08805	1732-1816	084-76	33
			Deepwater, NJ	Off U.S. Route 130	08023	1554-1754	174-77	146
			Deepwater, NJ	Off U.S. Route 130	08023	1107-1307	175-77	5,960
			Deepwater, NJ	Off U.S. Route 130	08023	1125-1325	175-77	T
II	trichlorobenzene isomer(s)	120-82-1 or 108-70-3	Bound Brook, NJ	Eastern Turnpike	08805	1732-1816	084-76	867
			Edison, NJ	Parkland	08817	1247-1323	084-76	1160
			Edison, NJ	E. of Kin-Buc	08817	1425-1625	183-76	
			Linden, NJ	Off Tremley Point Rd.	07036	1228-1445	172-77	2
			Linden, NJ	Off Tremley Point Rd.	07036	1540-1045	172-3-77	7
			Linden, NJ	Off Tremley Point Rd.	07036	1530-1045	172-3-77	T
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	T
			Linden, NJ	Off Tremley Point Rd.	07036	1150-1420	173-77	T
			Deepwater, NJ	Close Salem Canal	08023	1612-1833	174-77	T
			Deepwater, NJ	Off U.S. Route 130	08023	1602-1818	174-77	T
			Deepwater, NJ	Off U.S. Route 130	08023	1554-1754	174-77	136

(continued)

Table D1 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	trichlorobenzene isomer(s) (cont.)	120-82-1 or 108-70-3	Deepwater, NJ	Off U.S. Route 130	08023	1800-1120	178-5-77	150
			Deepwater, NJ	Close Salem Canal	08023	1055-1255	175-77	13
			Deepwater, NJ	Off U.S. Route 130	08023	1125-1325	173-77	113
			Linden, NJ	Tremley Point Rd.	07036	1035-1135	315-77	91
			Linden, NJ	Tremley Point Rd.	07036	1035-1135	315-77	76
			Linden, NJ	Tremley Point Rd.	07036	1035-1135	315-77	91
			Niagara Falls, NY	703, 97th St.	14304	1051-1409	040-78	642
			Niagara Falls, NY	703, 97th St.	14304	1051-1409	040-78	58
			Niagara Falls, NY	753, 97th St.	14304	1035-1250	038-78	10,084
			Niagara Falls, NY	753, 97th St.	14304	1035-1250	038-78	1,010
			Niagara Falls, NY	763, 97th St.	14304	1055-1450	038-78	72
			Niagara Falls, NY	763, 97th St.	14304	1055-1450	038-78	T (23)
			Niagara Falls, NY	779, 97th St.	14304	1130-1457	038-78	56
			Niagara Falls, NY	779, 97th St.	14304	1130-1457	038-78	1,306
			Niagara Falls, NY	779, 97th St.	14304	1130-1457	038-78	1,066
			Niagara Falls, NY	783, 97th St.	14304	1013-1935	039-78	26
			Niagara Falls, NY	783, 97th St.	14304	1013-1935	039-78	3,424
			Niagara Falls, NY	783, 97th St.	14304	1013-1935	039-78	580
			Niagara Falls, NY	476, 99th St.	14304	0923-1255	039-78	27,228
			Niagara Falls, NY	476, 99th St.	14304	0923-1255	039-78	2,370
			Niagara Falls, NY	476, 99th St.	14304	0923-1255	039-78	3,686
			Niagara Falls, NY	474, 99th St.	14304	0910-1216	040-78	65
			Niagara Falls, NY	474, 99th St.	14304	0910-1216	040-78	45
			Niagara Falls, NY	474, 99th St.	14304	0910-1216	040-78	45
			Niagara Falls, NY	468, 99th St.	14304	1155-1507	038-78	T (21)
			Niagara Falls, NY	468, 99th St.	14304	1155-1507	038-78	T (21)
			Niagara Falls, NY	460, 99th St.	14304	0950-1221	040-78	28
			Niagara Falls, NY	460, 99th St.	14304	0950-1221	040-78	T (27)
			Niagara Falls, NY	454, 99th St.	14304	0945-1305	039-78	11
			Niagara Falls, NY	440, 99th St.	14304	1038-1312	039-78	23
			Niagara Falls, NY	440, 99th St.	14304	1038-1312	039-78	T (23)
			Niagara Falls, NY	440, 99th St.	14304	1038-1312	039-78	T (23)
			Niagara Falls, NY	99th St. School	14304	0845-1725	040-78	T (128)
			Niagara Falls, NY	93rd St. School	14304	0830-1640	040-78	T (79)

(continued)

Table D1 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	trichlorotoluene isomer(s)		Niagara Falls, NY	703, 97th St.	14304	1051-1409	040-78	634
			Niagara Falls, NY	703, 97th St.	14304	1051-1409	040-78	3,336
			Niagara Falls, NY	703, 97th St.	14304	1051-1409	040-78	1,142
			Niagara Falls, NY	753, 97th St.	14304	1035-1250	038-78	206
			Niagara Falls, NY	753, 97th St.	14304	1035-1250	038-78	3,790
			Niagara Falls, NY	753, 97th St.	14304	1035-1250	038-78	1,810
			Niagara Falls, NY	753, 97th St.	14304	1035-1250	038-78	842
			Niagara Falls, NY	763, 97th St.	14304	1055-1450	038-78	46
			Niagara Falls, NY	763, 97th St.	14304	1055-1450	038-78	62
			Niagara Falls, NY	763, 97th St.	14304	1055-1450	038-78	T (19)
			Niagara Falls, NY	763, 97th St.	14304	1055-1450	038-78	T (19)
			Niagara Falls, NY	779, 97th St.	14304	1130-1457	038-78	134
			Niagara Falls, NY	779, 97th St.	14304	1130-1457	038-78	1,786
			Niagara Falls, NY	779, 97th St.	14304	1130-1457	038-78	594
			Niagara Falls, NY	779, 97th St.	14304	1130-1457	038-78	60
			Niagara Falls, NY	783, 97th St.	14304	1013-1935	039-78	1,644
			Niagara Falls, NY	783, 97th St.	14304	1013-1935	039-78	4,908
			Niagara Falls, NY	783, 97th St.	14304	1013-1935	039-78	466
			Niagara Falls, NY	783, 97th St.	14304	1013-1935	039-78	160
			Niagara Falls, NY	476, 99th St.	14304	0923-1255	039-78	6,886
			Niagara Falls, NY	476, 99th St.	14304	0923-1255	039-78	42,286
			Niagara Falls, NY	476, 99th St.	14304	0923-1255	039-78	43,700
			Niagara Falls, NY	476, 99th St.	14304	0923-1255	039-78	25,986
			Niagara Falls, NY	474, 99th St.	14304	0910-1216	040-78	69
			Niagara Falls, NY	474, 99th St.	14304	0910-1216	040-78	79
			Niagara Falls, NY	468, 99th St.	14304	1155-1507	038-78	T (18)
			Niagara Falls, NY	468, 99th St.	14304	1155-1507	038-78	T (18)
			Niagara Falls, NY	454, 99th St.	14304	0945-1305	039-78	T (19)
			Niagara Falls, NY	454, 99th St.	14304	0945-1305	039-78	T (19)
II	1,3-hexachlorobutadiene	87-68-3	Niagara Falls, NY	753, 97th St.	14304	1035-1250	038-78	114
			Niagara Falls, NY	779, 97th St.	14304	1130-1457	038-78	26
			Niagara Falls, NY	783, 97th St.	14304	1013-1935	039-78	100
			Niagara Falls, NY	476, 99th St.	14304	0923-1255	039-78	414

(continued)

Table D1 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	chloronitrobenzene isomer		Deepwater, NJ	Off U.S. Route 130	08023	1554-1754	174-77	360
			Deepwater, NJ	Off U.S. Route 130	08023	1800-1120	174-5-77	T
II	dichloronitrobenzene isomer		Deepwater, NJ	Off U.S. Route 130	08023	1554-1754	174-77	2,704
			Deepwater, NJ	Off U.S. Route 130	08023	1800-1120	174-5-77	T
			Deepwater, NJ	Off U.S. Route 130	08023	1125-1325	175-77	32
II	tetrachlorobenzene isomer(s)	95-94-3 or 634-66-2 or 634-90-2	Niagara Falls, NY	703, 97th St.	14304	1051-1409	040-78	16
			Niagara Falls, NY	753, 97th St.	14304	1035-1250	038-78	1,832
			Niagara Falls, NY	753, 97th St.	14304	1035-1250	038-78	9,600
			Niagara Falls, NY	763, 97th St.	14304	1055-1450	038-78	62
			Niagara Falls, NY	779, 97th St.	14304	1130-1457	038-78	280
			Niagara Falls, NY	779, 97th St.	14304	1130-1457	038-78	360
			Niagara Falls, NY	783, 97th St.	14304	1013-1935	039-78	214
			Niagara Falls, NY	783, 97th St.	14304	1013-1935	039-78	406
			Niagara Falls, NY	476, 99th St.	14304	0923-1255	039-78	2,400
			Niagara Falls, NY	476, 99th St.	14304	0923-1255	039-78	17,142
			Niagara Falls, NY	474, 99th St.	14304	0910-1216	040-78	32
			Niagara Falls, NY	474, 99th St.	14304	0910-1216	040-78	T (45)
			Niagara Falls, NY	474, 99th St.	14304	0910-1216	040-78	45
			Niagara Falls, NY	468, 99th St.	14304	1155-1507	038-78	T (21)
			Niagara Falls, NY	478, 99th St.	14304	1155-1507	038-78	T (21)
			Niagara Falls, NY	460, 99th St.	14304	0950-1221	040-78	17
			Niagara Falls, NY	454, 99th St.	14304	0945-1305	039-78	T (23)
			Niagara Falls, NY	454, 99th St.	14304	0945-1305	039-78	23
			Niagara Falls, NY	440, 99th St.	14304	1038-1312	039-78	T (23)
			Niagara Falls, NY	440, 99th St.	14304	1038-1312	039-78	T (23)
II	tetrachlorotoluene isomer(s)		Niagara Falls, NY	703, 97th St.	14304	1051-1409	040-78	148
			Niagara Falls, NY	703, 97th St.	14304	1051-1409	040-78	58
			Niagara Falls, NY	753, 97th St.	14304	1035-1250	038-78	168
			Niagara Falls, NY	779, 97th St.	14304	1130-1457	038-78	16

(continued)

Table D1 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
II	tetrachlorotoluene isomer(s) (cont.)		Niagara Falls, NY	783, 97th St.	14304	1013-1935	039-78	56
			Niagara Falls, NY	476, 99th St.	14304	0923-1255	029-78	970
			Niagara Falls, NY	474, 99th St.	14304	0910-1216	040-78	97
II	pentachlorobenzene	608-93-5	Niagara Falls, NY	753, 97th St.	14304	1035-1250	038-78	494
			Niagara Falls, NY	763, 97th St.	14304	1055-1450	038-78	T (23)
			Niagara Falls, NY	779, 97th St.	14304	1130-1457	038-78	18
			Niagara Falls, NY	783, 97th St.	14304	1013-1935	039-78	30
			Niagara Falls, NY	476, 99th St.	14304	0923-1255	039-78	250
			Niagara Falls, NY	474, 99th St.	14304	0910-1216	040-78	45

Table D2. VAPOR-PHASE HALOGENATED CHEMICALS - EPA REGION III

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
III	chloromethane	74-87-3	South Charleston, WV	167th 11th Ave.	25303	0900-1700	216-75	
			South Charleston, WV	314 4th Ave.	25303	0931-1800	220-75	
			Belle, WV	Off Creek St.	25015	1906-2106	338-75	
			Nitro, WV	Hwy. 60 and WV 25	25143	1158-1548	339-75	
III	vinyl chloride	75-01-4	Belle, WV	Off Creek St.	25015	1906-2106	338-75	∿2-4,000
			South Charleston, WV	Off Kanawha River	25303	1441-1640	337-75	T
			Nitro, WV	Hwy. 60 and WV 25	25143	1158-1548	339-75	∿ 50,000
III	chloroethane	75-00-3	South Charleston, WV	314 4th Ave.	25303	0931-1800	220-75	
			Baltimore, MD	Off Fairfield Rd.	21226	2300-0250	288-75	
			Baltimore, MD	Off Patapsco River	21226	1000-1350	289-75	
III	vinylidene chloride	75-35-4	Charleston, WV	4th Ave. W. and 21st St. W.	25312	0925-0810	297-9-77	T(263)
			Front Royal, VA	Commerce Ave. bet. 4th St. and 5th St.	22630	1609-1305	272-3-77	T(500)
			Front Royal, VA	501 Grand Ave.	22630	1735-0715	272-3-77	2,500
			Front Royal, VA	3rd St. and Villa Ave.	22630	0737-1315	273-77	778
			Bristol, PA	Off Hwy. 413 in Roadside Park	19007	1315-1415	231-77	T(333)
			North Philadelphia, PA	Brill St. bet. Bridge St. and Richmond	19007	1220-1320	233-77	T(263)
			Marcus Hook, PA	Off Hwy. 13	19061	1100-1200	234-77	T(263)

(continued)

Table D2 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
III	methylene chloride	75-09-2	South Charleston, WV	4th & C St.	25303	1000-1800	255-74	
			Dunbar, WV	11th & Myers	25054	1015-1815	254-74	
			South Charleston, WV	167 11th Ave.	25303	0900-1700	216-75	
			South Charleston, WV	314 4th Ave.	25303	1000-1750	216-75	
			Baltimore, MD	Off Fairfield Rd.	21226	1100-1450	287-75	
			Baltimore, MD	Off Fairfield Rd.	21226	2300-0250	288-9-75	
			Baltimore, MD	Off Patapsco River	21226	1000-1350	289-75	
			Baltimore, MD	Off North Ridge Ave.	21226	1400-1600	292-75	
			Baltimore, MD	Off Patapsco Ave.	21226	1355-1555	297-75	
			Belle, WV	Off Creek St.	25015	1906-2106	338-75	~ 8,700
			South Charleston, WV	Off Kanawha River	25303	1441-1600	337-75	
			Nitro, WV	Hwy. 60 and WV 25	25143	1158-1548	339-75	~50,000
			South Charleston, WV	Off Hwy. 64	25303	1302-1450	076-8-77	821 ± 107
			South Charleston, WV	Off Hwy. 64	25303	1508-1639	078-80-77	T(714)
			South Charleston, WV	Off Hwy. 64	25303	1650-1558	080-2-77	T(714)
			South Charleston, WV	Off Hwy. 64	25303	1605-1341	082-4-77	T(714)
			South Charleston, WV	Off Hwy. 64	25303	1349-1010	084-6-77	T(714)
			Bristol, PA	Off Otter Creek	19007	1314-1414	231-77	T(714)
			Bristol, PA	Off Hwy. 413 in Roadside Park	19007	1315-1415	231-77	T(571)
			North Philadelphia, PA	Belgrade St. and Pratt St.	19007	1030-1130	233-77	562 ± 7
			North Philadelphia, PA	Belgrade St.	19007	1025-1125	233-77	T(555)
			North Philadelphia, PA	Bridge St. and Garden St.	19007	1220-1320	233-77	T(555)
			North Philadelphia, PA	Brill St. bet. Bridge St. and Richmond	19007	1220-1320	233-77	T(555)

(continued)

Table D2 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
III	methylene chloride (cont.)	75-09-2	Marcus Hook, PA	Hwy. 13 and Smith St.	19061	1046-1146	234-77	T(555)
			Marcus Hook, PA	Off Hwy. 13	19061	1100-1200	234-77	966 ± 78
			Charleston, WV	4th Ave. W. and 21st St. W.	25312	1020-1435	270-1-77	T(1000)
			South Charleston, WV	314 4th Ave.	25303	1115-1617	270-77	T(1000)
			St. Albans, WV	6500 MacCorkle Ave., SW	25177	1202-1715	270-77	T(714)
			Nitro, WV	NW of WV 25 and I-64	25143	1400-1610	270-77	T(714)
			W. Belle, WV	Kanawha Blvd.	25015	1349-1945	270-77	T
			South Charleston, WV	314 4th Ave.	25312	0825-1308	271-77	T(555)
			St. Albans, WV	6500 MacCorkle Ave., SW	25177	0715-1355	271-77	778
			Charleston, WV	4th Ave. W and 21st St. W.	25312	0925-0850	297-9-77	867
			South Charleston, WV	314 4th Ave.	25303	1200-1737	297-77	715
			St. Albans, WV	6500 MacCorkle Ave., SW	25177	1130-1635	297-77	T(714)
			Nitro, WV	NW of WV 25 and I-64	25143	1035-1600	297-77	T(714)
			W. Belle, WV	Kanawha Bld.	25015	1315-1808	297-77	T(714)
			South Charleston, WV	314 4th Ave.	25303	0632-1205	298-77	11,334
			St. Albans, WV	6500 MacCorkle Ave., SW	25177	0534-1147	298-77	T(555)
			Nitro, WV	NW of WV 25 and I-64	25143	0505-1118	298-77	T(555)
			W. Belle, WV	Kanawha Bld.	25015	0600-1635	298-77	1,778
			Charleston, WV	4th Ave. and 21st St. W.	25312	1910-1125	320-2-77	2,818

(continued)

Table D2 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
III	methylene chloride (cont.)	75-09-2	South Charleston, WV	314 4th Ave.	25303	1235-1737	321-77	T(454)
			W. Belle, WV	Kanawha Blvd.	25015	1348-1811	321-77	T(454)
			Nitro, WV	4107 1st Ave.	25143	1335-1725	321-77	T(454)
			Institute, WV	Barron Dr. bet. 4th St. and Curtis Sq.	25112	1235-1700	321-77	4,091
			Charleston, WV	4th Ave. W. and 21st St. W.	25312	1135-0930	322-4-77	1,636
			South Charleston, WV	314 4th Ave.	25303	0809-1310	322-77	9,818
			W. Belle, WV	Kanawha Blvd.	25015	0729-1241	322-77	1,272
			Institute, WV	Barron Dr. bet. 4th St. and Curtis Sq.	25112	0728-1210	322-77	1,636
			Nitro, WV	NW of WV 25 and I-64	25143	0802-1250	322-77	1,600
			Front Royal, VA	8th St. and Crosby Rd.	22630	1040-1655	272-77	1,000
			Front Royal, VA	3rd St. and Villa Ave.	22630	1115-1715	272-77	T(714)
			Front Royal, VA	501 Grand Ave.	22630	1140-1728	272-77	1,857
			Front Royal, VA	Commerce Ave bet. 4th St. and 5th St.	22630	1609-1305	272-3-77	2,143
			Front Royal, VA	501 Grand Ave.	22630	1735-0715	272-3-77	97,627
			Front Royal, VA	Commerce Ave. and John Marshall Hwy.	22630	2030-0635	272-3-77	2,444
			Front Royal, VA	3rd St. and Villa Ave.	22630	0737-1315	273-77	4,600
			Front Royal, VA	13th St. and Commonwealth Ave.	22630	0800-1325	273-77	1,000

(continued)

Table D2 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
III	methylene chloride (cont.)	75-09-2	Front Royal, VA	8th St. and Crosby Rd.	22630	1508-2150	300-77	8,375
			Front Royal, VA	3rd St. and Villa Ave.	22630	1455-2115	300-77	40,571
			Front Royal, VA	501 Grand Ave.	22630	1520-2120	300-77	11,428
			Front Royal, VA	Commerce Ave. bet. 4th St. and 5th St.	22630	1550-0850	300-1-77	120,142
			Front Royal, VA	Commerce Ave. and John Marshall Hwy.	22630	1928-2315	300-77	87,375
			Front Royal, VA	8th St. and Crosby Rd.	22630	2155-0560	300-1-77	25,250
			Front Royal, VA	3rd St. and Villa Ave.	22630	2115-0555	300-1-77	2,625
			Front Royal, VA	501 Grand Ave.	22630	2126-0620	300-1-77	111,556
			Front Royal, VA	Commerce Ave. and John Marshall Hwy.	22630	2330-0545	300-1-77	238,250
			Front Royal, VA	3rd St. and Villa Ave.	22630	1540-2315	328-77	1,364
			Front Royal, VA	Commerce Ave. and John Marshall Hwy.	22630	1315-0845	328-30-77	T(454)
			Front Royal, VA	13th St. and Commonwealth Ave.	22630	1605-2330	328-77	2,545
			Front Royal, VA	346 10th St.	22630	1637-2335	328-77	T
			Front Royal, VA	1040 Adams Ave.	22630	1700-2345	328-77	1,091
			Front Royal, VA	3rd St. and Villa Ave.	22630	1000-1722	329-77	1,818
			Front Royal, VA	13th St. and Commonwealth Ave.	22630	1047-1705	329-77	2,090
			Front Royal, VA	346 10th St.	22630	1015-1715	329-77	6,273

(continued)

Table D2 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
III	chloroform	67-66-3	South Charleston, WV	4th and C St.	25303	1000-1800	255-74	
			Dunbar, WV	11th and Myers	25064	1015-1815	254-74	
			South Charleston, WV	167 11th Ave.	25303	0900-1700	216-75	
			South Charleston, WV	314 4th Ave.	25303	1000-1750	216-75	
			Baltimore, MD	Off Fairfield Rd.	21226	1100-1450	287-75	
			Baltimore, MD	Off Fairfield Rd.	21226	2300-0250	288-9-75	
			Baltimore, MD	Off Patapsco River	21226	1000-1350	289-75	
			Baltimore, MD	Off North Ridge Ave.	21226	1400-1600	292-75	
			Baltimore, MD	Off Patapsco Ave.	21226	1355-1555	297-75	
			Belle, WV	Off Creek St.	25015	1906-2015	338-75	
			South Charleston, WV	Off Kanawha River	25303	1441-1600	337-75	
			Nitro, WV	Hwy. 60 and WV 25	25143	1158-1548	339-75	∿ 39,000
			South Charleston, WV	Off Hwy. 64	25303	1302-1450	076-8-77	416 ± 162
			South Charleston, WV	Off Hwy. 64	25303	1508-1639	078-80-77	425 ± 200
			South Charleston, WV	Off Hwy. 64	25303	1650-1558	080-2-77	478 ± 188
			South Charleston, WV	Off Hwy. 64	25303	1605-1341	082-4-77	383 ± 129
			South Charleston, WV	Off Hwy. 64	25303	1349-1010	084-6-77	826 ± 131
			Bristol, PA	Off Otter Creek	19007	1314-1414	231-77	146 ± 21
			Bristol, PA	Off Hwy. 413 in Roadside Park	19007	1315-1415	231-77	262 ± 137
			North Philadelphia, PA	Belgrade St. and Pratt St.	19007	1030-1130	233-77	T(97)
			North Philadelphia, PA	Belgrade St.	19007	1025-1125	233-77	T(97)
			North Philadelphia, PA	Bridge St. and Garden St.	19007	1220-1320	233-77	T(96)

(continued)

Table D2 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
III	chloroform (cont.)	67-66-3	Front Royal, VA	Commerce Ave. and John Marshall Hwy.	22630	2030-0635	272-3-77	149
			Front Royal, VA	3rd St. and Villa Ave.	22630	0737-1315	273-77	278
			Front Royal, VA	13th St. and Commonwealth Ave.	22630	0800-1325	273-77	T(125)
			Front Royal, VA	8th St. and Crosby Rd.	22630	1508-2150	300-77	692
			Front Royal, VA	3rd St. and Villa Ave.	22630	1455-2115	300-77	792
			Front Royal, VA	501 Grand Ave.	22630	1520-2120	300-77	T(125)
			Front Royal, VA	Commerce Ave. bet. 4th St. and 5th St.	22630	1550-0850	300-1-77	2,708
			Front Royal, VA	Commerce Ave. and John Marshall Hwy.	22630	1925-2315	300-77	1,807
			Front Royal, VA	8th St. and Crosby Rd.	22630	2155-0520	300-1-77	711
			Front Royal, VA	3rd St. and Villa Ave.	22630	2115-0555	300-1-77	T(115)
			Front Royal, VA	501 Grand Ave.	22630	2126-0620	300-1-77	2,193
			Front Royal, VA	Commerce Ave. and John Marshall Hwy.	22630	2330-0645	300-1-77	14,517
			Front Royal, VA	3rd St. and Villa Ave.	22630	1540-2315	328-77	T(71)
			Front Royal, VA	13th St. and Commonwealth Ave.	22630	1047-1705	329-77	T(71)
			Front Royal, VA	346 10th St.	22630	1015-1715	329-77	119

(continued)

Table D2 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
III	chloroform (cont.)	67-66-3	North Philadelphia, PA	Brill St. bet. Bridge St. and Richmond	19007	1220-1320	233-77	T(96)
			Marcus Hook, PA	Hwy. 13 and Smith St.	19061	1046-1146	234-77	T(97)
			Marcus Hook, PA	Off Hwy. 13	19061	1100-1200	234-77	235 ± 22
			Charleston, WV	4th Ave. and 21st St. W.	25312	1020-1435	270-1-77	T(167)
			South Charleston, WV	314 4th Ave.	25303	1115-1617	270-77	T(167)
			St. Albans, WV	6500 MacCorkle Ave., SW	25177	1202-1715	270-77	T(125)
			Nitro, WV	NW of WV 25 and I-64	25143	1400-1610	270-77	T(125)
			South Charleston, WV	314 4th Ave.	25312	0825-1308	271-77	T(97)
			St. Albans, WV	6500 MacCorkle Ave., SW	25177	0715-1355	271-77	T(97)
			Charleston, WV	4th Ave. W. and 21st St. W.	25312	0925-0850	297-9-77	177
			South Charleston, WV	314 4th Ave	25303	1200-1737	297-77	T(125)
			St. Albans, WV	6400 MacCorkle Ave., SW	25177	1130-1635	297-77	T(125)
			Nitro, WV	NW of WV 25 and I-64	25143	1035-1600	297-77	T(125)
			W. Belle, WV	Kanawha Blvd.	25015	1315-1808	297-77	T(125)
			South Charleston, WV	314 4th Ave.	25303	0632-1205	298-77	2,161
			St. Albans, WV	6500 MacCorkle Ave., SW	25177	0534-1147	298-77	161
			Nitro, WV	NW of WV 25 and I-64	25143	0505-1118	298-77	1,333

(continued)

Table D2 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
III	1,2-dichloroethylene	540-59-0	St. Albans, WV	6500 MacCorkle Ave., SW	21577	1202-1715	270-77	T(334)
			W. Belle, WV	Kanawha Blvd.	25015	1349-1945	270-77	T(322)
			St. Albans, WV	6500 MacCorkle Ave., SW	25177	0715-1355	271-77	T(322)
			Charleston, WV	4th Ave. W. and 21st St. W.	25312	0925-0850	297-9-77	T(263)
			Nitro, WV	NW of WV 25 and I-64	25143	1035-1600	297-77	T(334)
			W. Belle, WV	Kanawha Blvd.	25015	1315-1808	297-77	T(334)
			South Charleston, WV	314 4th Ave.	25303	0632-1205	298-77	T(263)
			W. Belle, WV	Kanawha Blvd.	25015	0600-1235	298-77	T(263)
			Charleston, WV	4th Ave. and 21st St. W.	25312	1910-1125	320-2-77	T(212)
			South Charleston, WV	314 4th Ave.	25303	1235-1737	321-77	T(213)
			W. Belle, WV	Kanawha Blvd.	25015	1348-1811	321-77	T(213)
			Nitro, WV	4107 1st Ave.	25143	1335-1725	321-77	T(213)
			Institute, WV	Barron Dr. bet. 4th St. and Curtis Sq.	25112	1235-1700	321-77	T(213)
			Charleston, WV	4th Ave. W. and 21st St. W.	25312	1135-0930	322-4-77	T(213)
			South Charleston, WV	314 4th Ave.	25303	0809-1310	322-77	T(213)
			Nitro, WV	NW of WV 25 and I-64	25143	0802-1250	322-77	T(213)
			Front Royal, VA	8th St. and Crosby Rd.	22630	1040-1655	272-77	T(334)
			Front Royal, VA	Commerce Ave. bet. 4th St. and 5th St.	22630	1609-1305	272-3-77	T(500)

(continued)

Table D2 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
III	1,2-dichloroethylene (cont.)	540-59-0	Front Royal, VA	8th St. and Crosby Rd.	22630	1508-2150	300-77	T(312)
			Front Royal, VA	3rd St. and Villa Ave.	22630	1455-2115	300-77	T(334)
			Front Royal, VA	501 Grand Ave.	22630	1520-2120	300-77	T(334)
			Front Royal, VA	Commerce Ave. bet. 4th St. and 5th St.	22630	1550-0850	300-1-77	T(334)
			Front Royal, VA	Commerce Ave. and John Marshall Hwy.	22630	1925-2315	300-77	T(312)
			Front Royal, VA	8th St. and Crosby Rd.	22630	2155-0520	300-1-77	T(312)
			Front Royal, VA	3rd St. and Villa Ave.	22630	2115-0555	300-1-77	T(312)
			Front Royal, VA	501 Grand Ave.	22630	2126-0620	300-1-77	1,842
			Front Royal, VA	Commerce Ave. and John Marshall Hwy.	22630	2330-0645	300-1-77	2,974
			Front Royal, VA	3rd St. and Villa Ave.	22630	1540-2315	328-77	T(213)
			Front Royal, VA	Commerce Ave. and John Marshall Hwy.	22630	1315-0845	328-30-77	T(213)
			Front Royal, VA	13th St. and Commonwealth Ave.	22630	1605-2330	328-77	T(213)
			Front Royal, VA	1040 Adams Ave.	22630	1700-2345	328-77	T(213)
			Front Royal, VA	3rd St. and Villa Ave.	22630	1000-1722	329-77	T(213)
			Front Royal, VA	13th St. and Commonwealth Ave.	22630	1047-1705	329-77	T(213)
			Front Royal, VA	346 10th St.	22630	1015-1715	329-77	T(213)
			Front Royal, VA	1040 Adams Ave.	22630	1030-1710	329-77	T(213)

(continued)

Table D2 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
III	1,2-dichloroethane	107-06-2	Bristol, PA	Off Otter Creek	19007	1314-1414	231-77	T(258)
			Bristol, PA	Off Hwy. 413 in in Roadside Park	19007	1315-1415	231-77	T(258)
			North Philadelphia, PA	Belgrade St. and and Pratt St.	19007	1030-1130	233-77	167 ± 77
			North Philadelphia, PA	Belgrade St.	19007	1025-1125	233-77	T(195)
			North Philadelphia, PA	Bridge St. and Garden St.	19007	1220-1320	233-77	965 ± 21
			North Philadelphia, PA	Brill St. bet. Bridge St. and Richmond	19007	1220-1320	233-77	927
			Marcus Hook, PA	Hwy. 13 and Smith St.	19061	1046-1146	234-77	T(195)
			Marcus Hook, PA	Off Hwy. 13	19061	1100-1200	234-77	T(195)
			South Charleston, WV	Off Hwy. 64	25303	1650-1558	080-2-77	T(258)
			Charleston, WV	4th Ave. W. and elt St., W.	25312	1020-1435	270-1-77	T(347)
			South Charleston, WV	314 4th Ave.	25303	1115-1617	270-77	T(258)
			W. Belle, WV	Kanawha Blvd.	25015	1349-1945	270-77	T(250)
			Front Royal, VA	3rd St. and Villa Ave.	22630	0737-1315	273-77	T(348)
			Front Royal, VA	13th St. and Commonwealth Ave.	22630	0800-1325	273-77	T(258)
			Front Royal, VA	8th St. and Crosby Rd.	22630	1508-2150	300-77	T(242)
			Front Royal, VA	3rd St. and Villa Ave.	22630	1455-2115	300-77	T(258)
			Front Royal, VA	501 Grand Ave.	22630	1520-2120	300-77	T(258)

(continued)

Table D2 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
III	1,2-dichloroethane (cont.)	107-06-2	Front Royal, VA	Commerce Ave. bet. 4th St. and 5th St.	22630	1550-0850	300-1-77	322
			Front Royal, VA	8th St. and Crosby Rd.	22630	2155-0520	300-1-77	T(242)
			Front Royal, VA	3rd St. and Villa Ave.	22630	2115-0555	300-1-77	T(242)
			Charleston, WV	4th Ave., W. and 21st St. W.	25312	0925-0850	297-9-77	T(195)
			South Charleston, WV	314 4th Ave.	25303	1200-1737	297-77	T(258)
			Nitro, WV	NW of WV 25 and I-64	25143	1035-1600	297-77	T(258)
			South Charleston, WV	314 4th Ave.	25303	0632-1205	298-77	T(195)
			St. Albans, WV	6500 MacCorkle Ave., SW	25177	0534-1147	298-77	T(195)
			Nitro, WV	NW of WV 25 and I-64	25143	0505-1118	298-77	T(195)
			W. Belle, WV	Kanawha Blvd.	25015	0600-1235	298-77	T(195)
			Charleston, WV	4th Ave. and 21st St. W.	25312	1910-1125	320-2-77	T(151)
			South Charleston, WV	314 4th Ave.	25303	1235-1737	321-77	151
			W. Belle, WV	Kanawha Blvd.	25615	1348-1811	321-77	T(163)
			Nitro, WV	4107 1st Ave.	25143	1335-1725	321-77	T(151)
			Institute, WV	Barron Dr. bet. 4th St. and Curtis Sq.	25112	1235-1700	321-77	T(151)
			Charleston, WV	4th Ave., W. and 21st St. W.	25312	1135-0930	322-4-77	T(151)
			South Charleston, WV	314 4th Ave.	25303	0809-1310	322-77	T(151)
			W. Belle, WV	Kanawha Blvd.	25015	0729-1241	322-77	T(151)

(continued)

Table D2 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
III	1,2-dichloroethane (cont.)	107-06-2	Institute, WV	Barron Dr. bet. 4th St. and Curtis Sq.	25112	0728-1210	322-77	T(151)
			Nitro, WV	NW of WV 25 and I-64	25143	0802-1250	322-77	T(151)
			Front Royal, VA	3rd St. and Villa Ave.	22630	1540-2315	328-77	T(151)
			Front Royal, VA	13th St. and Commonwealth Ave.	22630	1605-2330	328-77	T(151)
			Front Royal, VA	346 10th St.	22630	1637-2335	328-77	T(151)
			Front Royal, VA	1040 Adams Ave.	22630	1700-2345	328-77	T(151)
			Front Royal, VA	3rd St. and Villa Ave.	22630	1000-1722	329-77	T(151)
			Front Royal, VA	13th St. and Commonwealth Ave.	22630	1047-1705	329-77	T(151)
			Front Royal, VA	346 10th St.	22630	1015-1715	329-77	T(151)
			Front Royal, VA	1040 Adams Ave.	22630	1030-1710	329-77	T(151)
III	1,1,1-trichloroethane	71-55-6	South Charleston, WV	167 11th Ave.	25303	0900-1700	216-75	
			South Charleston, WV	314 4th Ave.	25303	1000-1750	216-75	
			Baltimore, MD	Off Fairfield Road	21226	1100-1450	287-75	
			Baltimore, MD	Off Fairfield Road	21226	2300-0250	288-9-75	
			Baltimore, MD	Off Patapsco River	21226	1000-1350	289-75	
			Baltimore, MD	Off North Ridge Ave.	21226	1400-1600	292-75	
			Baltimore, MD	Off Patapsco Ave.	21226	1355-1555	297-75	
			Belle, WV	Off Creek St.	25015	1906-2106	338-75	
			South Charleston, WV	Off Kanawha River	25303	1441-1600	337-75	
			Nitro, WV	Hwy. 60 and WV 25	25143	1158-1548	339-75	
			South Charleston, WV	Off Hwy. 64	25303	1302-1450	076-8-77	5,026 ± 1,093

(continued)

Table D2 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
III	1,1,1-trichloroethane (cont.)	71-55-6	South Charleston, WV	Off Hwy. 64	25303	1508-1639	078-80-77	2,663 ± 270
			South Charleston, WV	Off Hwy. 64	25303	1650-1558	080-2-77	2,300 ± 167
			South Charleston, WV	Off Hwy. 64	25303	1605-1341	082-4-77	2,867 ± 400
			South Charleston, WV	Off Hwy. 64	25303	1349-1010	084-6-77	1,820 ± 580
			Bristol, PA	Off Otter Creek	19007	1314-1414	231-77	T(333)
			Bristol, PA	Off Hwy. 413 in Roadside Park	19007	1315-1415	231-77	T(267)
			North Philadelphia, PA	Belgrade St. and Pratt St.	19007	1030-1130	293-77	325 ± 108
			North Philadelphia, PA	Belgrade St.	19007	1025-1125	233-77	T(278)
			North Philadelphia, PA	Bridge St. and Garden St.	19007	1220-1320	233-77	T(277)
			North Philadelphia, PA	Brill St. bet. Bridge St. and Richmond	19007	1220-1320	233-77	T(278)
			Marcus Hook, PA	Hwy. 13 and Smith St.	19061	1046-1146	234-77	T
			Marcus Hook, PA	Off Hwy. 13	19061	1100-1200	234-77	1,639 ± 1,250
			Charleston, WV	4th Ave. W. and 21st St. W.	25312	1020-1435	270-1-77	T(417)
			South Charleston, WV	314 4th Ave.	25303	1115-1617	270-77	T(334)
			St. Albans, WV	6500 MacCorkle Ave., SW	25177	1202-1715	270-77	T(334)

(continued)

Table D2 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
III	1,1,1-trichloroethane (cont.)	71-55-6	Nitro, WV	NW of WV 25 and I-64	25143	1400-1610	270-77	T(334)
			W. Belle, WV	Kanawha Blvd.	25015	1349-1945	270-77	T(312)
			South Charleston, WV	314 4th Ave.	25312	0825-1308	271-77	T(312)
			St. Albans, WV	6500 MacCorkle Ave., SW	25177	0715-1355	271-77	T(312)
			Charleston, WV	4th Ave. W. and 21st St. W.	25312	0925-0850	297-9-77	278
			South Charleston, WV	314 4th Ave.	25303	1200-1737	297-77	T(334)
			St. Albans, WV	6500 MacCorkle Ave., SW	25177	1130-1635	297-77	T(334)
			Nitro, WV	NW of WV 25 and I-64	25143	1035-1600	297-77	T(334)
			W. Belle, WV	Kanawha Blvd.	25015	1315-1808	297-77	T(334)
			South Charleston, WV	314 4th Ave.	25303	0632-1205	298-77	3,278
			St. Albans, WV	6500 MacCorkle Ave., SW	25177	0534-1197	298-77	T(278)
			Nitro, WV	NW of WV 25 and I-64	25143	0505-1118	298-77	T(278)
			Charleston, WV	4th Ave. and 21st St. W.	25312	1910-1125	320-2-77	T(217)
			South Charleston, WV	314 4th Ave.	25303	1235-1737	321-77	T(217)
			W. Belle, WV	Kanawha Blvd.	25015	1348-1811	321-77	T(217)
			Nitro, WV	4107 1st Ave.	25143	1335-1725	321-77	T(217)
			Institute, WV	Barron Dr. bet. 4th St. and Curtis Sq.	25112	1235-1700	321-77	T(217)
			Charleston, WV	4th Ave. W. and 21st St. W.	25312	1135-0930	322-4-77	T(217)

(continued)

Table D2 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
III	1,1,1-trichloroethane (cont.)	71-55-6	South Charleston, WV	314 4th Ave.	25303	0809-1310	322-77	T(217)
			W. Belle, WV	Kanawha Blvd.	25015	0729-1241	322-77	T(217)
			Institute, WV	Barron Dr. bet. 4th St. and Curtis Sq.	25112	0728-1210	322-77	347
			Nitro, WV	NW of WV 25 and I-64	25143	0802-1250	322-77	T(217)
			Front Royal, VA	8th St. and Crosby Rd.	22630	1040-1655	272-77	T(334)
			Front Royal, VA	3rd St. and Villa Ave.	22630	1115-1715	272-77	T(100)
			Front Royal, VA	501 Grand Ave.	22630	1140-1728	272-77	T(334)
			Front Royal, VA	Commerce Ave. bet. 4th St. and 5th St.	22630	1609-1305	272-3-77	T(334)
			Front Royal, VA	501 Grand Ave.	22630	1735-0715	272-3-77	381
			Front Royal, VA	Commerce Ave. and John Marshall Hwy.	22630	2030-0635	272-3-77	T(278)
			Front Royal, VA	13th St. and Commonwealth Ave.	22630	0800-1325	273-77	T(334)
			Front Royal, VA	8th St. and Crosby Rd.	22630	1508-2150	300-77	T(294)
			Front Royal, VA	3rd St. and Villa Ave.	22630	1455-2115	300-77	800
			Front Royal, VA	501 Grand Ave.	22630	1520-2120	300-77	T(334)
			Front Royal, VA	Commerce Ave. bet. 4th St. and 5th St.	22630	1550-0850	300-1-77	2,933

(continued)

Table D2 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
III	1,1,1-trichloroethane (cont.)	71-55-6	Front Royal, VA	Commerce Ave. and John Marshall Hwy.	22630	1925-2315	300-77	T(294)
			Front Royal, VA	8th St. and Crosby Rd.	22630	2155-0520	300-1-77	T(470)
			Front Royal, VA	3rd St. and Villa Ave.	22630	2115-0555	300-1-77	T(470)
			Front Royal, VA	501 Grand Ave.	22630	2126-0620	300-1-77	195
			Front Royal, VA	Commerce Ave. and John Marshall Hwy.	22630	2330-0645	300-1-77	T(312)
			Front Royal, VA	3rd St. and Villa Ave.	22630	1540-2315	328-77	T(217)
			Front Royal, VA	Commerce Ave. and John Marshall Hwy.	22630	1315-0845	328-30-77	T(217)
			Front Royal, VA	13th St. and Commonwealth Ave.	22630	1605-2330	328-77	T(217)
			Front Royal, VA	346 10th St.	22630	1637-2335	328-77	T(217)
			Front Royal, VA	1040 Adams Ave.	22630	1700-2345	328-77	T(217)
			Front Royal, VA	3rd St. and Villa Ave.	22630	1000-1722	329-77	T(217)
			Front Royal, VA	13th St. and Commonwealth Ave.	22630	1047-1705	329-77	T(217)
			Front Royal, VA	346 10th St.	22630	1015-1715	329-77	T(217)
			Front Royal, VA	1040 Adams Ave.	22630	1030-1710	329-77	T(217)

(continued)

Table D2 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
III	carbon tetrachloride	56-23-5	South Charleston, WV	167 11th Ave.	25303	0900-1700	216-75	
			South Charleston, WV	314 4th Ave.	25303	1000-1750	216-75	
			South Charleston, WV	314 4th Ave.	25303	0931-1800	220-75	
			Baltimore, MD	Off Fairfield Rd.	21226	1100-1450	287-75	
			Baltimore, MD	Off Patapsco River	21226	1000-1350	289-75	
			Baltimore, MD	Off North Ridge Ave.	21226	1400-1600	292-75	
			Baltimore, MD	Off Patapsco Ave.	21226	1355-1555	297-75	
			Belle, WV	Off Creek St.	25015	1906-2106	338-75	
			South Charleston, WV	Off Kanawha River	25303	1441-1600	337-75	
			South Charleston, WV	Off Hwy. 64	25303	1302-1450	076-8-77	T(95)
			South Charleston, WV	Off Hwy. 64	25303	1508-1639	078-80-77	T(95)
			South Charleston, WV	Off Hwy. 64	25303	1650-1558	080-2-77	T(95)
			South Charleston, WV	Off Hwy. 64	25303	1605-1341	082-4-77	T(95)
			South Charleston, WV	Off Hwy. 64	25303	1349-1010	084-6-77	T(95)
			Bristol, PA	Off Otter Creek	19007	1314-1414	231-77	T(95)
			Bristol, PA	Off Hwy. 413 in Roadside Park	19007	1315-1415	231-77	T(95)
			North Philadelphia, PA	Belgrade St. and Pratt St.	19007	1030-1130	233-77	T(74)
			North Philadelphia, PA	Belgrade St.	19007	1025-1125	233-77	T(74)
			North Philadelphia, PA	Bridge St. and Garden St.	19007	1220-1320	233-77	T(74)
			North Philadelphia, PA	Brill St. bet. Bridge St. and Richmond	19007	1220-1320	233-77	T(74)
			Marcus Hook, PA	Hwy. 13 and Smith St.	19061	1046-1146	234-77	T(74)
			Marcus Hook, PA	Off Hwy. 13	19061	1100-1200	234-77	T(74)
			South Charleston, WV	314 4th Ave.	25303	1115-1617	270-77	T(125)

(continued)

Table D2 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
III	carbon tetrachloride (cont.)	56-23-5	Nitro, WV	NW of WV 25 and I-64	25143	1400-1610	270-77	T(95)
			W. Belle, WV	Kanawha Blvd.	25015	1349-1445	270-77	T(91)
			South Charleston, WV	314 4th Ave.	25312	0825-1308	271-77	T(74)
			St. Albans, WV	6500 MacCorkle Ave., SW	25177	0715-1355	271-77	T(74)
			Charleston, WV	4th Ave. W. and 21st St. W.	25312	0925-0850	297-9-77	215
			South Charleston, WV	314 4th Ave.	25303	1200-1757	297-77	T(95)
			St. Albans, WV	6500 MacCorkle Ave., SW	25177			
			Nitro, WV	NW of WV 25 and I-64	25143	1035-1600	297-77	T(95)
			W. Belle, WV	Kanawha Blvd.	25015	1315-1808	297-77	T(95)
			South Charleston, WV	314 4th Ave.	25303	0632-1205	298-77	2,222
			St. Albans, WV	6500 MacCorkle Ave., SW	25177	0534-1147	298-77	3,630
			Nitro, WV	NW of WV 25 and I-64	25143	0505-1118	298-77	97
			W. Belle, WV	Kanawha Blvd.	25015	0600-1235	298-77	T(74)
			Charleston, WV	4th Ave. and 21st St. W.	25312	1910-1125	320-2-77	529
			South Charleston, WV	314 4th Ave.	25303	1235-1737	321-77	T(59)
			W. Belle, WV	Kanawha Blvd.	25015	1348-1811	321-77	T(59)
			Nitro, WV	4107 1st Ave.	25143	1335-1725	321-77	T(59)
			Institute, WV	Barron Dr. bet. 4th St. and Curtis Sq.	25112	1235-1700	321-77	441

(continued)

Table D2 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m³)
III	carbon tetrachloride (cont.)	56-23-5	Charleston, WV	4th Ave. W. and 21st St. W.	25312	1135-0930	322-4-77	T(59)
			South Charleston, WV	314 4th Ave.	25303	0809-1310	322-77	500
			W. Belle, WV	Kanawha Blvd.	25015	0729-1241	322-77	T(59)
			Institute, WV	Barron Dr. bet. 4th St. and Curtis Sq.	25112	0728-1210	322-77	T(59)
			Nitro, WV	NW of WV 25 and I-64	25143	0802-1250	322-77	T(59)
			Front Royal, VA	3rd St. and Villa Ave.	22630	1115-1715	272-77	T(74)
			Front Royal, VA	501 Grand Ave.	22630	1140-1728	272-77	T(95)
			Front Royal, VA	Commerce Ave. and John Marshall Hwy.	22630	1735-0715	272-3-77	190
			Front Royal, VA	3rd St. and Villa Ave.	22630	0737-1315	273-77	T(125)
			Front Royal, VA	13th St. and Commonwealth Ave.	22630	0800-1325	273-77	T(95)
			Front Royal, VA	8th St. and Crosby Rd.	22630	1508-2150	300-77	217
			Front Royal, VA	3rd St. and Villa Ave.	22630	1455-2115	300-77	T(95)
			Front Royal, VA	501 Grand Ave.	22630	1520-2120	300-77	T(95)
			Front Royal, VA	Commerce Ave. bet. 4th St. and 5th St.	22630	1550-0850	300-1-77	1,190

(continued)

Table D2 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
III	carbon tetrachloride (cont.)	56-23-5	Front Royal, VA	Commerce Ave. and John Marshall Hwy.	22630	1925-2315	300-77	T(87)
			Front Royal, VA	8th St. and Crosby Rd.	22630	2155-0520	300-1-77	T(87)
			Front Royal, VA	3rd St. and Villa Ave.	22630	2115-0555	300-1-77	565
			Front Royal, VA	501 Grand Ave.	22630	2126-0620	300-1-77	889
			Front Royal, VA	Commerce Ave. and John Marshall Hwy.	22630	2330-0645	300-1-77	280
			Front Royal, VA	Commerce Ave. and John Marshall Hwy.	22630	1315-0845	328-30-77	T(59)
			Front Royal, VA	3rd St. and Villa Ave.	22630	1000-1722	329-77	T(59)
			Front Royal, VA	346 10th St.	22630	1015-1715	329-77	T(59)
III	trichloroethylene	79-01-6	Baltimore, MD	Off Fairfield Rd.	21226	1100-1450	287-75	
			Baltimore, MD	Off Patapsco River	21226	1000-1350	289-75	
			Baltimore, MD	Off North Ridge Ave.	21226	1400-1600	292-75	
			Baltimore, MD	Off Patapsco Ave.	21226	1355-1555	297-75	
			Belle, WV	Off Creek St.	25015	1906-2106	338-75	
			South Charleston, WV	Off Kanawha River	25303	1441-1600	337-75	
			Nitro, WV	Hwy. 60 and WV 25	25143	1158-1548	339-75	
			Charleston, WV	4th Ave. W. and 21st St. W.	25312	1020-1435	270-1-77	T(132)
			South Charleston, WV	314 4th Ave.	25303	1115-1617	270-77	T(100)
			Nitro, WV	NW of WV 25 and I-64	25143	1400-1610	270-77	300
			South Charleston, WV	314 4th Ave.	25312	0825-1308	271-77	T(98)
			St. Albans, WV	6500 MacCorkle Ave., SW	25177	0715-1355	271-77	T(98)

(continued)

Table D2 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
III	trichloroethylene (cont.)	79-01-6	Bristol, PA	Off Otter Creek	19007	1314-1414	231-77	T(100)
			Bristol, PA	Off Hwy. 413 in Roadside Park	19007	1315-1415	231-77	T(100)
			North Philadelphia, PA	Belgrade St. and Pratt St.	19007	1030-1130	233-77	T(111)
			North Philadelphia, PA	Belgrade St.	19007	1025-1125	233-77	T(92)
			North Philadelphia, PA	Bridge St. and Garden St.	19007	1220-1320	233-77	T(83)
			Marcus Hook, PA	Hwy. 13 and Smith St.	19061	1046-1146	234-77	T(80)
			Marcus Hook, PA	Off Hwy. 13	19061	1100-1200	234-77	T(88)
			South Charleston, WV	314 4th Ave.	25303	1200-1757	297-77	T(100)
			Nitro, WV	NW of WV 25 and I-64	25143	1035-1600	297-77	360
			W. Belle, WV	Kanawha Blvd.	25015	1315-1808	297-77	T(100)
			South Charleston, WV	314 4th Ave.	25303	0632-1205	298-77	179
			St. Albans, WV	6500 MacCorkle Ave., SW	25177	0534-1147	298-77	45
			Nitro, WV	NW of WV 25 and I-64	25143	0505-1118	298-77	358
			W. Belle, WV	Kanawha Blvd.	25015	0600-1235	298-77	T(75)
			Charleston, WV	4th Ave. and 21st St. W.	25312	1910-1125	320-2-77	T(56)
			South Charleston, WV	314 4th Ave.	25303	1235-1737	321-77	T(56)
			W. Belle, WV	Kanawha Blvd.	25015	1348-1811	321-77	T(55)
			Nitro, WV	4107 1st Ave.	25143	1335-1725	321-77	T(55)
			Institute, WV	Barron Dr. bet. 4th St. and Curtis Sq.	25112	1235-1700	321-77	T(55)

(continued)

Table D2 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
III	trichloroethylene (cont.)	79-01-6	Charleston, WV	4th Ave. W. and 21st St. W.	25312	1135-0930	322-4-77	T(55)
			South Charleston, WV	314 4th Ave.	25303	0809-1310	322-77	T(55)
			W. Belle, WV	Kanawha Blvd.	25015	0729-1241	322-77	T(55)
			Institute, WV	Barron Dr. bet. 4th St. and Curtis Sq.	25112	0728-1210	322-77	T(55)
			Nitro, WV	NW of WV 25 and I-64	25143	0802-1250	322-77	T(55)
			Front Royal, VA	Commerce Ave. bet. 4th St. and 5th St.	22630	1609-1305	272-3-77	T(100)
			Front Royal, VA	501 Grand Ave.	22630	1735-0715	272-3-77	T(98)
			Front Royal, VA	Commerce Ave. and John Marshall Hwy.	22630	2030-0635	272-3-77	T(74)
			Front Royal, VA	3rd St. and Villa Ave.	22630	0737-1315	273-77	T(132)
			Front Royal, VA	8th St. and Crosby Rd.	22630	1508-2150	300-77	T(96)
			Front Royal, VA	3rd St. and Villa Ave.	22630	1455-2115	300-77	T(100)
			Front Royal, VA	501 Grand Ave.	22630	1520-2120	300-77	T(100)
			Front Royal, VA	Commerce Ave. bet. 4th St. and 5th St.	22630	1550-0850	300-1-77	420
			Front Royal, VA	8th St. and Crosby Rd.	22630	2155-0520	300-1-77	T(96)
			Front Royal, VA	3rd St. and Villa Ave.	22630	2115-0555	300-1-77	T(96)
			Front Royal, VA	Commerce Ave. and John Marshall Hwy.	22630	2330-0645	300-1-77	T(77)
			Front Royal, VA	3rd St. and Villa Ave.	22630	1540-2315	328-77	T(155)

(continued)

Table D2 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
III	trichloroethylene (cont.)	79-01-6	Front Royal, VA	Commerce Ave. and John Marshall Hwy.	22630	1315-0845	328-30-77	T(155)
			Front Royal, VA	13th St. and Commonwealth Ave.	22630	1605-2330	328-77	T(155)
			Front Royal, VA	346 10th St.	22630	1637-2335	328-77	T(155)
			Front Royal, VA	1040 Adams Ave.	22630	1700-2345	328-77	T(155)
			Front Royal, VA	3rd St. and Villa Ave.	22630	1000-1722	329-77	T(155)
			Front Royal, VA	13th St. and Commonwealth Ave.	22630	1047-1705	329-77	T(155)
			Front Royal, VA	346 10th St.	22630	1015-1715	329-77	T(155)
			Front Royal, VA	1040 Adams Ave.	22630	1030-1710	329-77	T(155)
III	tetrachloroethylene	127-18-4	South Charleston, WV	4th and C St.	25303	1000-1800	255-74	
			South Charleston, WV	167 11th Ave.	25303	0900-1700	216-75	
			South Charleston, WV	314 4th Ave.	25303	1000-1750	216-75	
			South Charleston, WV	314 4th Ave.	25303	0931-1800	220-75	
			Baltimore, MD	Off Fairfield Rd.	21226	1100-1450	287-75	
			Baltimore, MD	Off Fairfield Rd.	21226	2300-0250	288-9-75	
			Baltimore, MD	Off Patapsco River	21226	1000-1350	289-75	
			Baltimore, MD	Off North Ridge Ave.	21226	1400-1600	292-75	
			Baltimore, MD	Off Patapsco Ave.	21226	1355-1555	297-75	
			Belle, WV	Off Creek St.	25015	1906-2106	338-75	
			South Charleston, WV	Off Kanawha River	25303	1441-1600	337-75	
			Nitro, WV	Hwy. 60 and WV 25	25143	1158-1548	339-75	
			Bristol, PA	Off Otter Creek	19007	1314-1414	231-77	
			Bristol, PA	Off Hwy. 413 in Roadside Park	19007	1315-1415	231-77	

(continued)

Table D2 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
III	tetrachloroethylene (cont.)	127-18-4	North Philadelphia, PA	Belgrade St. and Pratt St.	19007	1030-1130	233-77	
			North Philadelphia, PA	Belgrade St.	19007	1025-1125	233-77	
			North Philadelphia, PA	Bridge St. and Garden St.	19007	1220-1320	233-77	
			North Philadelphia, PA	Brill St. bet. Bridge St. and Richmond	19007	1220-1320	233-77	
			Marcus Hook, PA	Hwy. 13 and Smith St.	19061	1046-1146	234-77	
			Marcus Hook, PA	Off Hwy. 13	19061	1100-1200	234-77	
			Charleston, WV	4th Ave. W. and 21st St. W.	25312	1020-1435	270-1-77	T(48)
			South Charleston, WV	314 4th Ave.	25303	1115-1617	270-77	T(35)
			St. Albans, WV	6500 MacCorkle Ave. SW	25177	1202-1715	270-77	T(36)
			W. Belle, WV	Kanawha Blvd.	25015	1349-1945	270-77	T(36)
			South Charleston, WV	314 4th Ave.	25312	0825-1308	271-77	146
			St. Albans, WV	6500 MacCorkle Ave. SW	25177	0715-1355	271-77	T(26)
			Charleston, WV	4th Ave. W. and 21st St. W.	25312	0925-0850	297-9-77	109
			South Charleston, WV	314 4th Ave.	25303	1200-1757	297-77	T(36)
			Nitro, WV	NW of WV 25 and I-64	25143	1035-1600	297-77	T(360)
			W. Belle, WV	Kanawha Blvd.	25015	1315-1808	297-77	T(36)
			South Charleston, WV	314 4th Ave.	25303	0632-1205	298-77	1,536
			St. Albans, WV	6400 MacCorkle Ave. SW	25177	0534-1147	298-77	434
			Nitro, WV	NW of WV 25 and I-64	25143	0505-1118	298-77	52
			Charleston, WV	4th Ave. and 21st St. W.	25312	1910-1125	320-2-77	T(20)

(continued)

Table D2 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
III	tetrachloroethylene (cont.)	127-18-4	South Charleston, WV	314 4th Ave.	25303	1235-1737	321-77	T(19)
			W. Belle, WV	Kanawha Blvd.	25015	1348-1811	321-77	T(19)
			Nitro, WV	4107 1st Ave.	25143	1335-1725	321-77	T(19)
			Institute, WV	Barron Dr. bet. 4th St. and Curtis Sq.	25112	1235-1700	321-77	T(19)
			Charleston, WV	4th Ave. W. and 21st St. W.	25312	1135-0930	322-4-77	T(19)
			South Charleston, WV	314 4th Ave.	25303	0809-1310	322-77	T(19)
			W. Belle, WV	Kanawha Blvd.	25015	0729-1241	322-77	T(19)
			Institute, WV	Barron Dr. bet. 4th St. and Curtis Sq.	25112	0728-1210	322-77	T(19)
			Nitro, WV	NW of WV 25 and I-64	25143	0802-1280	322-77	T(19)
			Front Royal, VA	8th St. and Crosby Rd.	22630	1040-1655	272-77	T(36)
			Front Royal, VA	3rd St. and Villa Ave.	22630	1115-1715	272-77	20
			Front Royal, VA	Commerce Ave. bet. 4th St. and 5th St.	22630	1609-1305	272-3-77	T(36)
			Front Royal, VA	501 Grand Ave.	22630	1735-0715	272-3-77	132
			Front Royal, VA	Commerce Ave. and John Marshall Hwy.	22630	2030-0635	272-3-77	26
			Front Royal, VA	3rd St. and Villa Ave.	22630	0737-1315	273-77	35
			Front Royal, VA	13th St. and Commonwealth Ave.	22630	0800-1325	273-77	31
			Front Royal, VA	8th St. and Crosby Rd.	22630	1508-2150	300-77	380

(continued)

Table D2 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
III	tetrachloroethylene (cont.)	127-18-4	Front Royal, VA	3rd St. and Villa Ave.	22630	1455-2115	300-77	332
			Front Royal, VA	501 Grand Ave.	22630	1520-2120	300-77	36
			Front Royal, VA	Commerce Ave. bet. 4th St. and 5th St.	22630	1550-0850	300-1-77	2,994
			Front Royal, VA	Commerce Ave. and John Marshall Hwy.	22630	1925-2315	300-77	T(36)
			Front Royal, VA	8th St. and Crosby Rd.	22630	2155-0520	300-1-77	163
			Front Royal, VA	3rd St. and Villa Ave.	22630	2115-0555	300-1-77	35
			Front Royal, VA	501 Grand Ave.	22630	2126-0620	300-1-77	388
			Front Royal, VA	Commerce Ave. and John Marshall Hwy.	22630	2330-0645	300-1-77	77
			Front Royal, VA	3rd St. and Villa Ave.	22630	1540-2315	328-77	T(19)
			Front Royal, VA	Commerce Ave. and John Marshall Hwy.	22630	1315-0845	328-30-77	T(19)
			Front Royal, VA	13th St. and Commonwealth Ave.	22630	1605-2330	328-77	T(19)
			Front Royal, VA	346 10th St.	22630	1637-2335	328-77	T(19)
			Front Royal, VA	1040 Adams St.	22630	1700-2345	328-77	T(19)
			Front Royal, VA	3rd St. and Villa Ave.	22630	1000-1722	329-77	T(19)
			Front Royal, VA	13th St. and Commonwealth Ave.	22630	1047-1705	329-77	T(19)
			Front Royal, VA	346 10th St.	22630	1015-1715	329-77	T(19)
			Front Royal, VA	1040 Adams Ave.	22630	1030-1710	329-77	T(19)

(continued)

Table D2 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
III	chlorobenzene	108-86-1	South Charleston, WV	167 11th Ave.	25303	0900-1700	216-75	
			South Charleston, WV	314 4th Ave.	25303	1000-1750	216-75	
			South Charleston, WV	314 4th Ave.	25303	0931-1800	220-75	
			Baltimore, MD	Off Fairfield Rd.	21226	1100-1450	287-75	
			Baltimore, MD	Off Fairfield Rd.	21226	2300-0250	288-75	
			Baltimore, MD	Off Patapsco River	21226	1000-1350	289-75	
			Baltimore, MD	Off North Ridge Ave.	21226	1400-1600	292-75	
			Baltimore, MD	Off Patapsco Ave.	21226	1355-1555	297-75	
			Nitro, WV	Hwy. 60 and WV 25	25143	1158-1548	339-75	
			South Charleston, WV	Off Hwy. 64	25303	1605-1341	082-4-77	T(319)
			South Charleston, WV	Off Hwy. 64	25303	1349-1010	084-6-77	T(349)
			Nitro, WV	NW of WV 25 and I-64	25143	1400-1610	270-77	T(32)
			Charleston, WV	4th Ave. W. and 21st St. W.	26312	0925-0850	297-9-77	T(29)
			South Charleston, WV	314 4th Ave.	25303	1200-1737	297-77	T(56)
			W. Belle, WV	Kanawha Blvd.	25015	1315-1808	298-77	T(36)
			Nitro, WV	NW of WV 25 and I-64	25143	0505-1118	298-77	T(37)
			W. Belle, WV	Kanawha Blvd.	25015	1348-1811	321-77	T(18)
			Nitro, WV	4107 1st Ave.	25143	1335-1725	321-77	T(18)
			Bristol, PA	Off Hwy. 413 in Roadside Park	19007	1315-1415	231-77	448 ± 190
			North Philadelphia, PA	Belgrade St. and Pratt St.	19007	1030-1130	233-77	T(278)
			North Philadelphia, PA	Belgrade St.	19007	1025-1125	233-77	T(238)
			North Philadelphia, PA	Bridge St. and Garden St.	19007	1220-1320	233-77	T(278)

(continued)

Table D2 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
III	chlorobenzene (cont.)	108-86-1	North Philadelphia, PA	Brill St. bet. Bridge St. and Richmond	19007	1220-1320	233-77	T(250)
			Marcus Hook, PA	Hwy. 13 and Smith St.	19061	1046-1146	234-77	T(278)
			Marcus Hook, PA	Off Hwy. 13	19061	1100-1200	234-77	T(242)
			Institute, WV	Barron Dr. bet. 4th St. and Curtis Sq.	25112	1235-1700	321-77	T(18)
			Charleston, WV	4th Ave. W. and 21st St. W.	25312	1135-0930	322-4-77	T(18)
			South Charleston, WV	314 4th Ave.	25303	0809-1310	322-77	T(18)
			W. Belle, WV	Kanawha Blvd.	25015	0729-1241	322-77	T(18)
			Institute, WV	Barron Dr. bet. 4th St. and Curtis Sq.	25112	0728-1210	322-77	T(18)
			Nitro, WV	NW of WV 25 and I-64	25143	0802-1250	322-77	T(18)
			Front Royal, VA	Commerce Ave. and John Marshall Hwy.	22630	2030-0636	272-3-77	T(26)
			Front Royal, VA	3rd St. and Villa Ave.	22630	0737-1315	273-77	T(44)
			Front Royal, VA	8th St. and Crosby Rd.	22630	1508-2150	300-77	T(38)
			Front Royal, VA	3rd St. and Villa Ave.	22630	1455-2115	300-77	T(36)
			Front Royal, VA	501 Grand Ave.	22630	1520-2120	300-77	T(32)
			Front Royal, VA	Commerce Ave. bet. 4th St. and 5th St.	22630	1550-0850	300-1-77	T(82)

(continued)

Table D2 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
III	chlorobenzene (cont.)	108-86-1	North Philadelphia, PA	Brill St. bet. Bridge St. and Richmond	19007	1220-1320	233-77	T(250)
			Marcus Hook, PA	Hwy. 13 and Smith St.	19061	1046-1146	234-77	T(278)
			Marcus Hook, PA	Off Hwy. 13	19061	1100-1200	234-77	T(242)
			Institute, WV	Barron Dr. bet. 4th St. and Curtis Sq.	25112	1235-1700	321-77	T(18)
			Charleston, WV	4th Ave. W. and 21st St. W.	25312	1135-0930	322-4-77	T(18)
			South Charleston, WV	314 4th Ave.	25303	0809-1310	322-77	T(18)
			W. Belle, WV	Kanawha Blvd.	25015	0729-1241	322-77	T(18)
			Institute, WV	Barron Dr. bet. 4th St. and Curtis Sq.	25112	0728-1210	322-77	T(18)
			Nitro, WV	NW of WV 25 and I-64	25143	0802-1250	322-77	T(18)
			Front Royal, VA	Commerce Ave. and John Marshall Hwy.	22630	2030-0636	272-3-77	T(26)
			Front Royal, VA	3rd St. and Villa Ave.	22630	0737-1315	273-77	T(44)
			Front Royal, VA	8th St. and Crosby Rd.	22630	1508-2150	300-77	T(38)
			Front Royal, VA	3rd St. and Villa Ave.	22630	1455-2115	300-77	T(36)
			Front Royal, VA	501 Grand Ave.	22630	1520-2120	300-77	T(32)
			Front Royal, VA	Commerce Ave. bet. 4th St. and 5th St.	22630	1550-0850	300-1-77	T(82)

(continued)

Table D2 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
III	chlorobenzene (cont.)	108-86-1	Front Royal, VA	3rd St. and Villa Ave.	22630	1540-2315	328-77	T(18)
			Front Royal, VA	Commerce Ave. and John Marshall Hwy.	22630	1315-0845	328-30-77	T(18)
			Front Royal, VA	13th St. and Commonwealth Ave.	22630	1605-2330	328-77	T(18)
			Front Royal, VA	346 10th St.	22630	1637-2335	328-77	T(18)
			Front Royal, VA	1040 Adams Ave.	22630	1700-2345	328-77	T(18)
			Front Royal, VA	3rd St. and Villa Ave.	22630	1000-1722	329-77	T(18)
			Front Royal, VA	13th St. and Commonwealth Ave.	22630	1047-1705	329-77	T(18)
			Front Royal, VA	346 10th St.	22630	1015-1715	329-77	T(18)
			Front Royal, VA	1040 Adams Ave.	22630	1030-1710	329-77	T(18)
III	m-dichlorobenzene	541-73-1	Baltimore, MD	Off Fairfield Rd.	21226	1100-1450	287-75	
			Baltimore, MD	Off Fairfield Rd.	21226	2300-0250	288-9-75	
			Baltimore, MD	Off Patapsco River	21226	1000-1350	289-75	
			Baltimore, MD	Off Patapsco Ave.	21226	1355-1555	297-75	
			Belle, WV	Off Creek St.	25015	1906-2106	338-75	
			South Charleston, WV	Off Kanawha River	25303	1441-1600	337-75	
			Nitro, WV	Hwy. 60 and WV 25	25143	1158-1548	339-75	
			South Charleston, WV	Off Hwy. 64	25303	1302-1450	076-8-77	T
			South Charleston, WV	Off Hwy. 64	25303	1508-1639	078-80-77	T
			South Charleston, WV	Off Hwy. 64	25303	1640-1558	080-2-77	T
			South Charleston, WV	Off Hwy. 64	25303	1604-1341	082-4-77	T
			South Charleston, WV	Off Hwy. 64	25303	1349-1010	084-6-77	T
			South Charleston, WV	314 4th Ave.	25303	1115-1617	270-77	T(28)
			St. Albans, WV	6500 MacCorkle Ave. SW	25177	1202-1715	270-77	T(18)
			Nitro, WV	NW of WV 25 and I-64	25143	1400-1610	270-77	T(20)

(continued)

Table D2 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
III	m-dichlorobenzene (cont.)	541-73-1	Nitro, WV	4107 1st Ave.	25143	1335-1725	321-77	T(12)
			Institute, WV	Barron Dr. bet. 4th St. and Curtis Sq.	25112	1235-1700	321-77	T(12)
			W. Belle, WV	Kanawha Blvd.	25015	0729-1241	322-77	T(9)
			Institute, WV	Barron Dr. bet. 4th St. and Curtis Sq.	25112	0728-1210	322-77	T(9)
			Nitro, WV	NW of WV 25 and I-64	25143	0802-1250	322-77	T(9)
			Front Royal, VA	3rd St. and Villa Ave.	22630	1115-1715	272-77	T(27)
			Front Royal, VA	501 Grand Ave.	22630	1140-1728	272-77	T(18)
			Front Royal, VA	Commerce Ave. bet. 4th St. and 5th St.	22630	1609-1305	272-3-77	22
			Front Royal, VA	501 Grand Ave.	22630	1735-0715	272-3-77	8
			Front Royal, VA	Commerce Ave. and John Marshall Hwy.	22630	2030-0635	272-3-77	T(18)
			Front Royal, VA	3rd St. and Villa Ave.	22630	0737-1315	273-77	T(17)
			Front Royal, VA	13th St. and Commonwealth Ave.	22630	0800-1325	273-77	T(31)
			Front Royal, VA	8th St. and Crosby Rd.	22630	1508-2150	300-77	35
			Front Royal, VA	3rd St. and Villa Ave.	22630	1455-2115	300-77	T(24)
			Front Royal, VA	501 Grand Ave.	22630	1520-2120	300-77	T(21)
			Front Royal, VA	Commerce Ave. bet. 4th St. and 5th St.	22630	1550-0850	300-1-77	279
			Front Royal, VA	8th St. and Crosby Rd.	22630	2155-0520	300-1-77	T(26)

(continued)

Table D2 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
III	m-dichlorobenzene (cont.)	541-73-1	W. Belle, WV	Kanawha Blvd.	25015	1349-1945	270-77	T(18)
			South Charleston, WV	314 4th Ave.	25312	0825-1308	271-77	38
			Bristol, PA	Off Otter Creek	19007	1314-1414	231-77	T(182)
			Bristol, PA	Off Hwy. 413 in Roadside Park	19007	1315-1415	231-77	T(172)
			North Philadelphia, PA	Belgrade St. and Pratt St.	19007	1030-1130	233-77	T(159)
			North Philadelphia, PA	Belgrade St.	19007	1025-1125	233-77	T(185)
			North Philadelphia, PA	Bridge St. and Garden St.	19007	1220-1320	233-77	T(167)
			North Philadelphia, PA	Brill St. bet. Bridge St. and Richmond	19007	1220-1320	233-77	T(185)
			Marcus Hook, PA	Hwy. 13 and Smith St.	19061	1046-1146	234-77	T(161)
			Marcus Hook, PA	Off Hwy. 13	19061	1100-1200	234-77	T(182)
			Charleston, WV	4th Ave. W. and 21st St. W.	25312	0925-0850	297-9-77	101
			South Charleston, WV	314 4th Ave.	25303	1200-1737	297-77	T(37)
			Nitro, WV	NW of WV 25 and I-64	25143	1035-1600	297-77	T(27)
			W. Belle, WV	Kanawha Blvd.	25015	1315-1808	297-77	T(240
			South Charleston, WV	314 4th Ave.	25303	0632-1205	298-77	276
			St. Albans, WV	6500 MacCorkle Ave. SW	25177	0534-1147	298-77	T(23)
			Nitro, WV	NW of WV 25 and I-64	25143	0505-1118	298-77	T(24)
			South Charleston, WV	314 4th Ave.	25303	1235-1737	321-77	T(12)
			W. Belle, WV	Kanawha Blvd.	25015	1348-1811	321-77	T(8)

(continued)

Table D2 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
III	m-dichlorobenzene (cont.)	541-73-1	Front Royal, VA	501 Grand Ave.	22630	2126-0620	300-1-77	T(14)
			Front Royal, VA	3rd St. and Villa Ave.	22630	1540-2315	328-77	T(9)
			Front Royal, VA	Commerce Ave. and John Marshall Hwy.	22630	1315-0845	328-30-77	T(9)
			Front Royal, VA	13th St. and Commonwealth Ave.	22630	1605-2330	328-77	T(9)
			Front Royal, VA	346 10th St.	22630	1637-2335	328-77	T(9)
			Front Royal, VA	1040 Adams Ave.	22630	1700-2345	328-77	T(9)
			Front Royal, VA	3rd St. and Villa Ave.	22630	1000-1722	329-77	T(9)
			Front Royal, VA	13th St. and Commonwealth Ave.	22630	1047-1705	329-77	T(9)
			Front Royal, VA	346 10th St.	22630	1015-1715	329-77	T(9)
			Front Royal, VA	1040 Adams Ave.	22630	1030-1710	329-77	T(9)
III	o-dichlorobenzene	95-50-1	South Charleston, WV	4th and C St.	25303	1000-1800	255-74	
			Dunbar, WV	11th and Myers	25064	1015-1815	254-74	
			South Charleston, WV	167 11th Ave.	25303	0900-1700	216-75	
			South Charleston, WV	314 4th Ave.	25303	1000-1750	216-75	
			South Charleston, WV	314 4th Ave.	25303	0931-1800	220-75	
			Baltimore, MD	Off Fairfield Rd.	21226	1100-1450	287-75	
			Baltimore, MD	Off Patapsco Rd.	21226	1000-1350	289-75	
			Nitro, WV	Hwy. 60 and WV 25	25143	1158-1548	339-75	
			South Charleston, WV	314 4th Ave.	25303	1115-1617	270-77	T(17)
			South Charleston, WV	314 4th Ave.	25303	0825-1308	271-77	T(18)
			South Charleston, WV	314 4th Ave.	25303	1200-1737	297-77	T(37)
			Nitro, WV	NW of WV 25 and I-64	25143	1035-1600	297-77	T(27)
			South Charleston, WV	314 4th Ave.	25303	0632-1205	298-77	306

(continued)

Table D2 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
III	o-dichlorobenzene (cont.)	95-50-1	St. Albans, WV	6500 MacCorkle Ave. SW	25177	0534-1147	298-77	T(23)
			Nitro, WV	NW of WV 25 and I-64	25143	0505-1118	298-77	39
			W. Belle, WV	Kanawha Blvd.	25015	1348-1811	321-77	T(8)
			Nitro, WV	4107 1st Ave.	25143	1335-1725	321-77	T(12)
			Institute, WV	Barron Dr. bet. 4th St. and Curtis Sq.	25112	1235-1700	321-77	59
			South Charleston, WV	314 4th Ave.	25303	0809-1310	322-77	T(9)
			W. Belle, WV	Kanawha Blvd.	25015	0729-1241	322-77	T(9)
			Institute, WV	Barron Dr. bet. 4th St. and Curtis Sq.	25112	0728-1210	322-77	T(9)
			Nitro, WV	NW of WV 25 and I-64	25143	0802-1250	322-77	T(9)
			Front Royal, VA	501 Grand Ave.	22630	1235-0715	272-3-77	T(13)
			Front Royal, VA	Commerce Ave. and John Marshall Hwy	22630	2030-0635	272-3-77	T(18)
			Front Royal, VA	13th St. and Commonwealth Ave.	22630	0800-1325	273-77	T(31)
			Front Royal, VA	8th St. and Crosby Rd.	22630	1508-2150	300-77	58
			Front Royal, VA	3rd St. and Villa Ave.	22630	1455-2115	300-77	T(24)
			Front Royal, VA	501 Grand Ave.	22630	1520-2120	300-77	T(21)
			Front Royal, VA	Commerce Ave. bet. 4th St. and 5th St.	22630	1550-0850	300-1-77	T(55)

(continued)

Table D2 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
III	o-dichlorobenzene (cont.)	95-50-1	Front Royal, VA	501 Grand Ave.	22630	2126-0620	300-1-77	38
			Front Royal, VA	3rd St. and Villa Ave.	22630	1540-2315	328-77	T(9)
			Front Royal, VA	Commerce Ave. and John Marshall Hwy.	22630	1315-0845	328-30-77	T(9)
			Front Royal, VA	346 10th St.	22630	1637-2335	328-77	T(9)
			Front Royal, VA	1040 Adams Ave.	22630	1700-2345	328-77	T(9)
			Front Royal, VA	3rd St. and Villa Ave.	22630	1000-1722	329-77	T(9)
			Front Royal, VA	13th St. and Commonwealth Ave.	22630	1047-1705	329-77	T(9)
			Front Royal, VA	346 10th St.	22630	1015-1715	329-77	T(9)
			Front Royal, VA	1040 Adams Ave.	22630	1030-1710	329-77	T(9)
			Bristol, PA	Off Hwy. 413	19007	1315-1415	231-77	T(172)
			North Philadelphia, PA	Belgrade St.	19007	1025-1125	233-77	185
			North Philadelphia, PA	Bridge St. and Garden St.	19007	1220-1320	233-77	T(167)
			North Philadelphia, PA	Brill St. bet. Bridge St. and Richmond	19007	1220-1320	232-77	T(185)
III	trichlorobenzene [isomer(s)]	12002-48-1	South Charleston, WV	4th and C St.	25303	1000-1800	255-74	
			Dunbar, WV	11th and Myers	25064	1015-1815	254-74	
			Baltimore, MD	Off Fairfield Rd.	21226	1100-1450	287-75	
			Front Royal, VA	13th St. and Commonwealth Ave.	22630	1637-2335	328-77	T(7)
			Bristol, PA	Off Hwy. 413	19007	1315-1415	231-77	T(103)
			North Philadelphia, PA	Belgrade St.	19007	1025-1125	233-77	11
			North Philadelphia, PA	Brill St. bet. Bridge St. and Richmond	19007	1220-1320	233-77	T(92)

Table D3. VAPOR-PHASE HALOGENATED CHEMICALS - EPA REGION IV

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
IV	methylene chloride	75-09-2	Birmingham, AL	Off St. 30 N ?	35207?	1616-1630	102-4-77	286
			Birmingham, AL	Off St. 30 N ?	35207	1615-1715	106-8-77	T(715)
			Birmingham, AL	Off St. 30 N ?	35207	1830-1400	108-10-77	T(715)
			Birmingham, AL	Off St. 30 N ?	35207	1445-1430	110-2-77	1,074 ± 3,590
IV	chloroform	67-66-3	Birmingham, AL	Off St. 30 N ?	35207?	1616-1630	102-4-77	375
			Birmingham, AL	Off St. 30 N ?	35207	1830-1435	104-6-77	146 ± 21
			Birmingham, AL	Off St. 30 N ?	35207	1830-1400	108-10-77	T(125)
			Birmingham, AL	Off St. 30 N ?	35207	1445-1430	110-2-77	1,096 ± 690
IV	carbon tetrachloride	56-23-5	Birmingham, AL	Off St. 30 N ?	35207?	1616-1630	102-4-77	T(95)
			Birmingham, AL	Off St. 30 N ?	35207	1830-1435	104-6-77	T(95)
			Birmingham, AL	Off St. 30 N ?	35207	1615-1715	106-8-77	T(95)
			Birmingham, AL	Off St. 30 N ?	35207	1830-1400	108-10-77	T(95)
			Birmingham, AL	Off St. 30 N ?	35207	1445-1430	110-2-77	T(95)
IV	1,2-dichloroethane	107-06-2	Birmingham, AL	Off St. 30 N ?	35207	1830-1435	104-6-77	205 ±12
			Birmingham, AL	Off St. 30 N ?	35207	1616-1715	106-8-77	399 ±52
IV	1,1,1-trichloroethane	71-55-6	Birmingham, AL	Off St. 30 N ?	35207?	1616-1630	102-4-77	2,267
			Birmingham, AL	Off St. 30 N ?	35207	1830-1435	104-6-77	2,067 ± 267
			Birmingham, AL	Off St. 30 N ?	35207	1615-1715	106-8-77	2,100 ± 233
			Birmingham, AL	Off St. 30 N ?	35207	1830-1400	108-10-77	1,867
			Birmingham, AL	Off St. 30 N ?	35207	1445-1430	110-2-77	T(334)

(continued)

Table D3 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
IV	trichloroethylene	79-01-6	Birmingham, AL	Off St. 30 N ?	35207?	1616-1630	102-4-77	T(100)
			Birmingham, AL	Off St. 30 N ?	35207	1830-1435	104-6-77	134 ± 2
			Birmingham, AL	Off St. 30 N ?	35207	1615-1715	106-8-77	T(100)
			Birmingham, AL	Off St. 30 N ?	35207	1830-1400	108-10-77	T(100)
			Birmingham, AL	Off St. 30 N ?	35207	1445-1430	110-2-77	T(100)
IV	tetrachloroethylene	127-18-4	Birmingham, AL	Off St. 30 N ?	35207?	1616-1630	102-4-77	T(25)
			Birmingham, AL	Off St. 30 N ?	35207	1830-1435	104-6-77	58 ± 7
			Birmingham, AL	Off St. 30 N ?	35207	1615-1715	106-8-77	T(65)
			Birmingham, AL	Off St. 30 N ?	35207	1830-1400	108-10-77	T(65)
			Birmingham, AL	Off St. 30 N ?	35207	1445-1430	110-2-77	T(65)
IV	chlorobenzene	108-90-7	Birmingham, AL	Off St. 30 N ?	35207?	1616-1630	102-4-77	38
			Birmingham, AL	Off St. 30 N ?	35207	1830-1435	104-6-77	122 ± 54
			Birmingham, AL	Off St. 30 N ?	35207	1615-1715	106-8-77	92 ± 42
			Birmingham, AL	Off St. 30 N ?	35207	1830-1400	108-10-77	T(141)
			Birmingham, AL	Off St. 30 N ?	35207	1445-1430	110-2-77	1,000
IV	m-dichlorobenzene	541-73-1	Birmingham, AL	Off St. 30 N ?	35207?	1616-1630	102-4-77	T(188)
			Birmingham, AL	Off St. 30 N ?	35207	1830-1435	104-6-77	278 ± 19
			Birmingham, AL	Off St. 30 N ?	35207	1615-1715	106-8-77	557 ± 196
			Birmingham, AL	Off St. 30 N ?	35207	1830-1400	108-10-77	T(94)
			Birmingham, AL	Off St. 30 N ?	35207	1445-1430	110-2-77	T(94)

(continued)

Table D3 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
IV	*o*-dichlorobenzene	95-50-1	Birmingham, AL	Off St. 30 N ?	35207?	1616-1630	102-4-77	T(189)
			Birmingham, AL	Off St. 30 N ?	35207	1830-1400	108-10-77	T(94)
			Birmingham, AL	Off St. 30 N ?	35207	1445-1430	110-2-77	348
IV	methylene chloride	75-09-2	St. Ann, MO	St. Charles Rd. and Industrial Blvd.	63074	2035-0525	251-2-75	
IV	chloroform	67-66-3	St. Louis, MO	4400 Lindell	63108	0650-1250	253-75	
			St. Ann, MO	St. Charles Rd. and Industrial Blvd.	63074	2035-0525	251-2-75	
IV	1,1,1-trichloroethane	71-55-6	St. Louis, MO	4400 Lindell	63108	0650-1250	253-75	
			St. Louis, MO	4400 Lindell	63108	2212-0235	2523-75	
			St. Ann, MO	St. Charles Rd. and Industrial Blvd.	63074	2035-0525	251-2-75	

Table D4. VAPOR-PHASE HALOGENATED CHEMICALS - EPA REGION VI

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	chloromethane	74-87-3	Pasadena, TX	Shaw Dr.	77506	1130-1130	315-6-74	
			Houston, TX	5609 May St.	77076	1630-1630	320-1-74	
			Houston, TX	May St.	77076	1245-2400	235-75	
			Pasadena, TX	Mae St.	77502	1000-1000	237-8-75	
			Pasadena, TX	Shaw Dr.	77506	1000-1000	238-9-75	
			Pasadena, TX	C. H. Milby Park	77017	1005-1425	241-75	
			Baton Rouge, LA	Off unpaved, unmarked road	70807	1207-1237	63-77	
			El Dorado, AK	Hwy. 167	71730	1140-1415	265-76	
			El Dorado, AK	Hwy. 167	71730	1140-1411	265-76	
			El Paso, TX			1150-1245	99-101-78	
			El Paso, TX			1218-1330	99-101-78	
VI	vinyl chloride	75-01-4	Pasadena, TX	Shaw Dr.	77506	1130-1130	315-6-74	
			Deer Park, TX	Diamond Shamrock Property	77536	1455-1555	211-76	T
			Deer Park, TX	Off Tidal Road	77536	1115-1215	212-76	100
			Plaquemine, LA	Bayou Road	70764	1437-1320	31-2-77	192
			Plaquemine, LA	Church & Main St.	70764	1540-1350	31-2-77	1,230
			Plaquemine, LA	LA 988 & Davis St.	70764	1255-1705	32-77	30
			Plaquemine, LA	50 yd. east off LA IN	70764	1430-1740	32-77	T
			Plaquemine, LA	East off LA 1	70764	1445-1755	32-77	59
			Plaquemine, LA	Off LA 1	70764	1600-1015	32-3-77	534
			Plaquemine, LA	Off LA 1	70764	1745-1015	32-3-77	1,334
			Plaquemine, LA	Plaquemine Evergreen Plantation	70764	1250-1725	33-77	64
			Plaquemine, LA	Plaquemine Evergreen Plantation	70764	1325-1715	33-77	76

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	methyl bromide	74-83-9	El Dorado, AK	Hwy. 167	71730	1140-1415	265-76	T
			El Dorado, AK	Hwy. 167	71730	1120-1625	265-76	T
			Magnolia, AK	Hwy. 79	71753	1355-1903	267-76	T
			El Dorado, AK	Off Hwy. 15	71730	1329-1257	138-9-78	
			El Dorado, AK	Off Hwy. 15	71730	1329-1257	138-9-78	
			El Dorado, AK	Off Hwy. 15	71730	1329-1257	138-9-78	
VI	ethyl chloride	75-00-3	Pasadena, TX	Shaw Dr.	77506	1130-1130	315-6-74	
			Houston, TX	5609 May St.	77076	1630-1630	320-1-74	
			Houston, TX	May St.	77076	1245-2400	235-75	
			Pasadena, TX	Shaw Dr.	77506	1000-1000	238-9-75	
			Pasadena, TX	C. H. Milby Park	77017	1005-1425	241-75	
			Deer Park, TX	Off Tidal Rd.	77536	1100-1200	211-76	
			Freeport, TX	Off St. 325	77541	1348-1555	221-76	
			Freeport, TX	Off St. 325	77541	1425-1508	221-76	
			Plaquemine, LA	Off LA 1	70764	1745-1015	32-3-77	1,378
			Plaquemine, LA	Off LA 1	70764	1600-1015	32-3-77	
			Geismar, LA	Hwy. 73	70734	1155-1615	60-77	
VI	vinylidene chloride	75-35-4	Plaquemine, LA	Bayou Rd.	70764	1437-1320	31-2-77	128
			Plaquemine, LA	Church & Main St.	70764	1540-1350	31-2-77	36
			Plaquemine, LA	Off LA 1	70764	1600-1015	32-3-77	132
			Plaquemine, LA	Off LA 1	70764	1745-1015	32-3-77	990
			Geismar, LA	Hwy. 73	70734	1155-1615	60-77	T
			Geismar, LA	Hwy. 73	70734	1615-1220	60-1-77	200
			Liberty Mounds, OK	District Water Works	74047	0355-0355	191-2-77	T
			Tulsa, OK	2nd & Elwood	74103	0600-0600	192-3-77	T
			Houston, TX	Aldine (Mail Rt.)	77037 or 9	0630-0930	232-77	427 ± 27
			Houston, TX	Aldine (Mail Rt.)	77037 or 9	1207-1510	293-77	T (334)

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	bromoethane	74-96-4	El Dorado, AK	Hwy. 167	71730	1140-1415	265-76	
			El Dorado, AK	Hwy. 167	71730	1140-1415	265-76	
VI	methylene chloride	75-09-2	Pasadena, TX	Shaw Dr.	77506	1130-1130	315-6-74	
			Baytown, TX	7200 Bayway Dr.	77520	1630-1630	317-8-74	
			Texas City, TX	-	77590	1415-1415	316-7-74	
			Houston, TX	5609 May St.	77076	1630-1630	320-1-74	
			Houston, TX	May St.	77076	1245-2400	235-75	
			Pasadena, TX	Mae St.	77502	1430-2200	237-75	
			Pasadena, TX	Mae St.	77502	1000-1000	237-8-75	
			Texas City, TX	Connie #10	77590	1200-2235	239-75	
			Texas City, TX	Connie #10	77590	2235-1155	239-40-75	
			Pasadena, TX	C. H. Milby Park	77017	1005-1425	241-75	
			Houston, TX	Milby Park	77017	1670-1750	209-76	
			Houston, TX	Steelman Ave S. E. & Buey Way	77017	1620-1750	209-76	
			Pasadena, TX	Between industrial site and ship channel	77503	1430-1600	210-76	
			Pasadena, TX	Off Hwy. 225	77503	1430-1600	210-76	
			Pasadena, TX	Near Houston ship channel	77503	1430-1600	210-76	
			Deer Park, TX	Off Tidal Rd.	77536	1100-1200	211-76	
			Deer Park, TX	Off 225	77536	1100-1200	211-76	
			Deer Park, TX	Off Tidal Rd.	77536	1455-1555	211-76	
			Deer Park, TX	Off Tidal Rd.	77536	1020-1035	212-76	
			Deer Park, TX	Off Tidal Rd.	77536	1115-1215	212-76	
			Deer Park, TX	Off Tidal Rd.	77536	1455-1555	211-76	
			Deer Park, TX	Off Tidal Rd.	77536	1115-1215	212-76	
			Freeport, TX	Off St. 352	77541	1348-1555	221-76	
			Freeport, TX	Off St. 352	77541	1425-1508	221-76	

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	methylene chloride (cont.)	75-09-2	Plaquemine, LA	Bayou Rd.	70764	1437-1320	31-2-77	
			Plaquemine, LA	Church & Main St.	70764	1540-1350	31-2-77	
			Plaquemine, LA	LA 988 & Davis St.	70764	1255-1705	32-77	
			Plaquemine, LA	50 yd. east off LA 1N	70764	1430-1740	32-77	
			Plaquemine, LA	East of LA 1	70764	1445-1755	32-77	
			Plaquemine, LA	Off LA 1	70764	1600-1015	32-3-77	
			Plaquemine, LA	Off LA 1	70764	1745-1015	32-3-77	
			Plaquemine, LA	Plaquemine Evergreen Plantation	70764	1250-1725	33-77	
			Plaquemine, LA	Plaquemine Evergreen Plantation	70764	1325-1715	33-77	
			Plaquemine, LA	Plaquemine Evergreen Plantation	70764	1400-1630	33-77	
			Plaquemine, LA	Plaquemine Evergreen Plantation	70764	1705-1020	33-4-77	
			Geismar, LA	Corner of Hwy. 73 & 75	70734	1545-1503	59-60-77	1,700
			Geismar, LA	Vulcan Rd.	70734	1630-1550	59-60-77	1,909
			Geismar, LA	Hwy. 73	70734	1155-1615	60-77	727
			Geismar, LA	Between Hwy. 30 & 73	70734	1215-1240	60-77	1,714
			Geismar, LA	Off LA 73	70734	1620-1537	59-60-77	700
			Geismar, LA	Hwy. 73	70734	1615-1220	60-1-77	545
			Geismar, LA	Off Hwy. 73	70734	1025-1240	61-77	772
			Geismar, LA	Off LA 75	70734	1620-1537	59-60-77	442
			Geismar, LA	Off Hwy. 75	70734	1330-1400	60-77	2,333
			Geismar, LA	Off Hwy. 30	70734	1603-1220	60-1-77	454
			Baton Rouge, LA	Off U. S. 61	70807	1150-1110	62-3-77	2,800
			Baton Rouge, LA	Off unpaved, unmarked road	70807	1135-1130	62-3-77	2,160
			Baton Rouge, LA	Off U. S. 61	70807	1220-1615	62-77	280
			Baton Rouge, LA	Off unpaved, unmarked road	70807	1207-1237	63-77	1,999
			Baton Rouge, LA	East side of LA 61	70807	1205-1630	67-77	160
			Baton Rouge, LA	Off U. S. 61	70807	1235-1550	67-77	280

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	methylene chloride (cont.)	75-09-2	Baton Rouge, LA	Off of Turning Basin Rd.	70807	1625-1215	67-8-77	840
			Baton Rouge, LA	Graveyard area	70807	1640-1030	67-8-77	440
			Baton Rouge, LA	Mengel Rd.	70807	1330-1640	68-77	240
			Baton Rouge, LA	Off LA 61	70805	1400-1700	68-7-77	160
			Baton Rouge, LA	Off Mengel Rd.	70807	1650-1100	68-9-77	320 ± 76
			Baton Rouge, LA	Off LA 190	70807	1715-1115	68-9-77	220
			Baton Rouge, LA	Off Mengel Rd.	70807	1105-1505	69-77	280
			Baton Rouge, LA	Off LA 61	70805	1140-1550	69-77	320
			Baton Rouge, LA	Choctaw Rd. & Pholox St.	70805	1215-1610	69-77	160
			Baton Rouge, LA	LA 1 & LA 190	70807	1700-0900	69-70-77	680
			Baton Rouge, LA	Downwind of several petroleum facilities	70807	1530-0930	69-70-77	160
			El Dorado, AK	Hwy. 167	71730	1330-1530	264-76	
			El Dorado, AK	Hwy. 167	71730	1325-1524	264-76	
			El Dorado, AK	AK City Water Tower	71730	2000-0900	268-9-76	
			El Dorado, AK	Parker's Chapel Water Tower	71730	2130-0930	268-9-76	
			El Dorado, AK	Hwy. 167	71730	1140-1415	265-76	
			El Dorado, AK	Hwy. 167	71730	1140-1411	265-76	
			El Dorado, AK	Hwy. 167	71730	1140-1415	265-76	
			Baton Rouge, LA	Devil's Swamp		1935-1430	132-4-77	1129 ± 229
			Baton Rouge, LA	Devil's Swamp		1515-1530	134-6-77	1449 ± 337
			Baton Rouge, LA	Devil's Swamp		1535-1400	136-8-77	1900 ± 900
			Baton Rouge, LA	Devil's Swamp		1400-0900	138-40-77	1,000
			Liberty Mounds, OK	District Water Works	74047	0355-0355	191-2-77	
			Tulsa, OK	2nd & Elwood	74103	0600-0600	192-3-77	
			Liberty Mounds, OK	District Water Works	74047	0600-0900	264-77	

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	methylene chloride (cont.)	75-09-2	Tulsa, OK	2nd & Elwood	74103	0600-0900	264-77	
			Vera, OK	-	74082	1400-1700	264-77	
			Houston, TX	Aldine (Mail Rt.)	77037 or 9	0945-1245	173-77	4375 + 3125
			Houston, TX	Clanton Dr.	77080	0745-1050	179-77	2736 ± 1014
			Houston, TX	Clanton Dr.	77080	0630-0930	231-77	1100 ± 100
			Houston, TX	Aldine (Mail Rt.)	77037 or 9	0630-0930	232-77	1000 ± 0
			Houston, TX	Crawford at Polk	77002	0615-0915	292-77	4142 ± 428
			Houston, TX	Aldine (Mail Rt.)	77037 or 9	1207-1510	293-77	3428
			Houston, TX	Crawford at Polk	77002	1546-1853	294-77	1000
			Houston, TX	Clanton Dr.	77080	0607-0907	294-77	4500 ± 1643
			Houston, TX	Navigation Blvd.	77003 or 11	1730-0930	195-7-77	
			Houston, TX	Navigation Blvd.	77003 or 11	1000-0900	202-4-77	
			Houston, TX	Navigation Blvd.	77003 or 11	1030-0915	204-6-77	
			Houston, TX	Navigation Blvd.	77003 or 11	0915-0945	206-8-77	
			Houston, TX	Navigation Blvd.	77003 or 11	1000-1015	208-10-77	
			El Paso, TX			1150-1245	99-101-78	
			El Paso, TX			1150-1245	99-101-78	
			El Paso, TX			1218-1330	99-101-78	
			El Paso, TX	Hwy. 10	79902	1015-1145	115-117-78	
			El Paso, TX	Hwy. 10	79902	1015-1145	115-117-78	
			El Paso, TX	Hwy. 10	79902	0918-1235	115-117-78	
			El Dorado, AK	Off Hwy. 15	71730	1329-1257	138-9-78	
			El Dorado, AK	Off Hwy. 15	71730	1329-1257	138-9-78	
			El Dorado, AK	Off Hwy. 15	71730	1329-1257	138-9-78	

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	1,1-dichloroethane	75-34-3	Deer Park, TX	Off Hwy. 225	77536	1100-1200	211-76	555
			Freeport, TX	Off St. 325	77541	1425-1508	221-76	
			Plaquemine, LA	Off LA 1	70764	1600-1015	32-3-77	T
			Plaquemine, LA	Off LA 1	70764	1745-1015	32-3-77	478 ± 56
			Geismar, LA	Hwy. 73	70734	1155-1615	60-77	235
			Geismar, LA	Between Hwy. 30 & 73	70734	1215-1240	60-7	75
			Geismar, LA	Hwy. 73	70734	1615-1220	60-1-77	550
			Geismar, LA	Off Hwy. 73	70734	1025-1240	61-77	133
			Geismar, LA	Off Hwy. 73	70734	1603-1220	60-1-77	167
			Baton Rouge, LA	Off US 61	70807	1235-1550	67-77	68
			Baton Rouge, LA	Mengel Rd.	70807	1330-1640	68-77	90
			Baton Rouge, LA	Off Mengel Rd.	70807	1105-1505	69-77	34
			Baton Rouge, LA	Off LA 61	70805	1140-1550	69-77	64
			Baton Rouge, LA	Downwind of several petroleum facilities	70807	1530-0930	69-70-77	477
VI	chloroform	67-66-3	Pasadena, TX	Shaw Dr.	77506	1130-1130	315-6-74	
			Texas City, TX	-	77590	1415-1415	316-7-74	
			Houston, TX	5609 May St.	77076	1630-1630	320-1-74	
			Houston, TX	May St.	77076	1245-2400	235-75	
			Pasadena, TX	Mae St.	77502	1430-2200	237-75	
			Pasadena, TX	Shaw Dr.	77506	1000-1000	238-9-75	
			Pasadena, TX	Shaw Dr.	77506	2230-1017	238-9-75	
			Texas City, TX	Connie #10	77590	1200-2235	239-75	
			Texas City, TX	Connie #10	77590	2235-1155	239-40-75	
			Pasadena, TX	C. H. Milby Park	77017	1005-1425	241-75	
			Houston, TX	Milby Park	77017	1670-1750	209-76	11,539
			Houston, TX	Steelman Ave. & El Buey Way	77017	1620-1750	209-76	11,538
			Pasadena, TX	Between industrial site & shi channel	77503	1430-1600	210-76	T
			Pasadena, TX	Off Hwy. 225	77503	1430-1600	210-76	T
			Pasadena, TX	Near Houston ship channel	77503	1430-1600	210-76	T
			Deer Park, TX	Off Tidal Rd.	77536	1100-1200	211-76	53,846

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	chloroform (cont)	67-66-3	Deer Park, TX	Off Hwy. 225	77536	1100-1200	211-76	6,420
			Deer Park, TX	Off Tidal Rd.	77536	1455-1555	211-76	7,692
			Deer Park, TX	Off Tidal Rd.	77536	1020-1035	212-76	1,923
			Deer Park, TX	Off Tidal Rd.	77536	1115-1215	212-76	8,846
			Deer Park, TX	Off Tidal Rd.	77536	1455-1555	211-76	T
			Deer Park, TX	Off Tidal Rd.	77536	1115-1215	212-76	15,384
			Freeport, TX	Off St. 352	77541	1342-1543	221-76	
			Freeport, TX	Off St. 352	77541	1348-1555	221-76	280
			Freeport, TX	Off St. 352	77541	1425-1508	221-76	T
			La Porte, TX	Off Hwy. 225	77571	1645-1833	224-76	8,461
			La Porte, TX	Off Hwy. 225	77571	1641-1824	224-76	8,850
			La Porte, TX	Off Hwy. 225	77571	1114-1252	225-76	7,692
			Plaquemine, LA	Bayou Rd.	70764	1437-1320	31-2-77	1,988 ± 122
			Plaquemine, LA	Church & Main St.	70764	1540-1350	31-2-77	419 ± 0
			Plaquemine, LA	East Off LA 1	70764	1445-1755	32-77	956 ± 112
			Plaquemine, LA	50 yd. East Off LA 1N	70764	1430-1740	32-77	633 ± 10
			Plaquemine, LA	Off LA 1	70764	1600-1015	32-3-77	2433 ± 100
			Plaquemine, LA	Off LA 1	70764	1745-1015	32-3-77	5866 ± 688
			Plaquemine, LA	Plaquemine Evergreen Plantation	70764	1250-1725	33-77	1080 ± 468
			Plaquemine, LA	Plaquemine Evergreen Plantation	70764	1325-1715	33-77	511 ± 327
			Plaquemine, LA	Plaquemine Evergreen Plantation	70764	1300-1630	33-77	1387 ± 161
			Plaquemine, LA	Plaquemine Evergreen Plantation	70764	1705-1020	33-4-77	1113 ± 274
			Geismar, LA	Corner of Hwy. 73 & 75	70734	1545-1503	59-60-77	1,571
			Geismar, LA	Vulcan Rd.	70734	1630-1550	59-60-77	3,057
			Geismar, LA	Hwy. 73	70734	1155-1615	60-77	3,000
			Geismar, LA	Between Hwy. 30 & 73	70734	1215-1240	60-77	11,742
			Geismar, LA	Off LA 75	70734	1620-1537	59-60-77	857
			Geismar, LA	Hwy. 73	70734	1615-1220	60-1-77	9,943
			Geismar, LA	Off Hwy. 73	70734	1025-1240	61-77	999
			Geismar, LA	Off LA 75	70734	1620-1537	59-60-77	943

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	chloroform (cont)	67-66-3	Geismar, LA	Off Hwy. 75	70734	1330-1400	60-77	10,355
			Geismar, LA	Off Hwy. 30	70734	1603-1220	60-1-77	1,257
			Baton Rouge, LA	Off US 61	70807	1150-1110	62-3-77	6,710
			Baton Rouge, LA	Off unpaved, unmarked road	70807	1135-1130	62-3-77	6,968
			Baton Rouge, LA	Off US 61	70807	1220-1615	62-77	1,290
			Baton Rouge, LA	Off US 61	70807	1125-1545	63-77	181
			Baton Rouge, LA	Off unpaved, unmarked road	70807	1207-1237	63-77	4,775
			Baton Rouge, LA	East side of LA 61	70807	1205-1630	67-77	387
			Baton Rouge, LA	Off US 61	70807	1235-1550	67-77	542
			Baton Rouge, LA	Off of Turning Basin Rd	70807	1625-1215	67-8-77	1,484
			Baton Rouge, LA	Graveyard Area	70807	1640-1030	67-8-77	1,097
			Baton Rouge, LA	Mengel Rd.	70807	1330-1640	68-77	560
			Baton Rouge, LA	Off LA 61	70805	1400-1700	68-77	368
			Baton Rouge, LA	Off Mengel Rd.	70807	1650-1100	68-9-77	568 ± 13
			Baton Rouge, LA	Off LA 190	70807	1715-1115	68-9-77	839
			Baton Rouge, LA	Off Mengel Rd.	70807	1105-1505	69-77	387
			Baton Rouge, LA	Off LA 61	70805	1140-1550	69-77	464
			Baton Rouge, LA	Choctaw Rd. and Pholox St.	70805	1215-1610	69-77	258
			Baton Rouge, LA	LA 1 and LA 190	70807	1700-0900	69-70-77	2,129
			Baton Rouge, LA	Downwind of several petroleum facilities	70807	1530-0930	69-70-77	477
			El Dorado, AK	Hwy. 167	71730	1330-1530	264-76	
			El Dorado, AK	Hwy. 167	71730	1325-1524	264-76	
			El Dorado, AK	Arkansas City Water Tower	71730	2000-0900	268-9-76	
			El Dorado, AK	Parker's Chapel Water Tower	71730	2130-0930	268-9-76	
			El Dorado, AK	Hwy. 167	71730	1140-1415	265-76	
			El Dorado, AK	Hwy. 167	71730	1140-1411	265-76	
			El Dorado, AK	Hwy. 167	71730	1140-1415	265-76	
			El Dorado, AK	Hwy. 167	71730	1140-1415	265-76	

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	chloroform (cont.)	67-66-3	Baton Rouge, LA	Devil's Swamp		1935-1430	132-4-77	144 ± 277
			Baton Rouge, LA	Devil's Swamp		1515-1530	134-6-77	1700 ± 233
			Baton Rouge, LA	Devil's Swamp		1535-1400	136-8-77	1417 ± 750
			Baton Rouge, LA	Devil's Swamp		1400-0900	138-40-77	1389
			Liberty Mounds, OK	District Water Works	74047	0355-0355	191-(2)-77	
			Tulsa, OK	2nd & Elwood	74103	0600-0600	192-(3)-77	
			Liberty Mounds, OK	District Water Works	74047	0600-0900	264-77	
			Tulsa, OK	2nd & Elwood	74103	0600-0900	264-77	
			Vera, OK	-	74082	1400-1700	264-77	
			Houston, TX	Aldine (Mail Rt.)	77037 or 9	0945-1245	173-77	3884 ± 2884
			Houston, TX	Clanton Dr.	77080	0745-1050	179-77	2064 ± 397
			Houston, TX	Clanton Dr.	77080	0630-0930	231-77	292 ± 125
			Houston, TX	Aldine (Mail Rt.)	77037 or 9	0630-0930	232-77	400 ± 25
			Houston, TX	Crawford at Polk	77002	0615-0915	292-77	327 ± 77
			Houston, TX	Aldine (Mail Rt.)	77037 or 9	1207-1510	293-77	500 ± 333
			Houston, TX	Crawford at Polk	77002	1546-1853	294-7	354 ± 146
			Houston, TX	Clanton Dr.	77080	0607-0907	294-77	T (125)
			Houston, TX	Navigation Blvd.	77003 or 11	1730-0930	195-7-77	541 ± 166
			Houston, TX	Navigation Blvd.	77003 or 11	1000-0900	202-4-77	2282 ± 162
			Houston, TX	Navigation Blvd.	77003 or 11	1030-0915	204-6-77	519 ± 58
			Houston, TX	Navigation Blvd.	77003 or 11	0915-0945	206-8-77	896 ± 396
			Houston, TX	Navigation Blvd.	77003 or 11	1000-1015	208-10-77	795 ± 147
			El Paso, TX			1150-1245	99-101-78	
			El Paso, TX			1218-1330	99-101-78	
			El Paso, TX	Hwy. 10	79902	1015-1145	115-7-78	
			El Paso, TX	Hwy. 10	79902	1015-1145	115-7-78	

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	chloroform (cont.)	67-66-3	El Paso, TX	Hwy. 10	77902	0918-1235	115-7-78	
			El Dorado, AK	Off Hwy. 15	71730	1329-1257	138-9-78	
VI	2-chloro-1,3-butadiene (chloroprene)	126-99-8	Pasadena, TX	C. H. Milby Park	77017	1005-1425	241-75	
			Houston, TX	Milby Park	77017	1670-1750	209-76	4,000
			Houston, TX	Off Goodyear Rd.	77017	1510-1515	209-76	266
VI	1-bromopropane	106-94-5	El Dorado, AK	Hwy. 15	71730	1330-1530	264-76	5.5
	or		El Dorado, AK	Hwy. 15	71730	1325-1524	264-76	6.7
	2-bromopropane	75-26-3	El Dorado, AK	Hwy. 15	71730	1200-1420	268-76	13.4
			El Dorado, AK	Hwy. 15	71730	1200-1420	268-76	10.8
			El Dorado, AK	Hwy. 15	71730	1200-1420	268-76	16.8
			El Dorado, AK	Hwy. 15	71730	1200-1420	268-76	15.4
			El Dorado, AK	Hwy. 15	71730	1018-1818	268-76	5.5
			El Dorado, AK	Hwy. 15	71730	1145-1824	268-76	16
			El Dorado, AK	Hwy. 15	71730	1740-0948	268-9-76	4
			El Dorado, AK	Hwy. 15	71730	1745-0945	268-9-76	11.8
			El Dorado, AK	Hwy. 15	71730	2130-0930	268-9-76	25.2
			El Dorado, AK	Hwy. 167	71730	1140-1411	265-76	T
			El Dorado, AK	Hwy. 167	71730	1140-1415	265-76	47.2
			El Dorado, AK	Hwy. 167	71730	1140-1415	265-76	T
			El Dorado, AK	Hwy. 167	71730	1140-1614	265-76	20.8
			El Dorado, AK	Hwy. 167	71730	1124-1624	265-76	24.8
			El Dorado, AK	Hwy. 167	71730	1120-1625	265-76	35
			El Dorado, AK	Hwy. 167	71730	1105-1742	265-76	T
			Magnolia, AK	Hwy. 79	71753	1427-1726	267-76	16.2
			Magnolia, AK	Hwy. 79	71753	1422-1726	267-76	26.6
			El Dorado, AK	Hwy. 15	71730	1139-1240	199-200-77	T
			El Dorado, AK	Hwy. 15	71730	1155-1305	199-200-77	T
			El Dorado, AK	Hwy. 15	71730	1543-1352	199-200-77	T
			El Dorado, AK	Hwy. 15	71730	1256-1110	200-1-77	T
			El Dorado, AK	Hwy. 15	71730	1400-1147	200-1-77	T
			El Dorado, AK	Hwy. 15	71730	1042-0845	202-3-77	T

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m³)
VI	1-bromopropane	106-94-5	El Dorado, AK	Hwy. 15	71730	1138-0910	202-3-77	T
	or		El Dorado, AK	Hwy. 15	71730	1150-0925	202-3-77	T
	2-bromopropane (cont.)	75-26-3	Magnolia, AK	Hwy. 79	71753	0925-1130	210-1-77	734
			Magnolia, AK	Hwy. 79	71753	1015-1150	210-1-77	T
VI	1,2-dichloroethane	107-06-2	Pasadena, TX	Mae St.	77502	1000-1000	237-8-75	
			Pasadena, TX	Shaw Dr.	77506	1000-1000	238-9-75	
			Houston, TX	Milby Park	77017	1670-1750	209-76	T
			Pasadena, TX	Off Hwy 225	77503	1430-1600	210-76	158
			Deer Park, TX	Off Tidal Rd.	77536	1100-1200	211-76	66,300
			Deer Park, TX	Off Hwy. 225	77536	1455-1555	211-76	6,722
			Deer Park, TX	Off Tidal Rd.	77536	1020-1035	212-76	T
			Deer Park, TX	Off Tidal Rd.	77536	1115-1215	212-76	4,055
			Deer Park, TX	Off Tidal Rd.	77536	1455-1555	211-76	T
			Deer Park, TX	Off Tidal Rd.	77536	1115-1215	212-76	T
			Freeport, TX	Off St. 352	77541	1348-1555	221-76	3,300
			Freeport, TX	Off St. 352	77541	1425-1508	221-76	4,500
			La Porte, TX	Off Hwy. 225	77571	1645-1833	224-76	778
			Plaquemine, LA	Bayou Rd.	70764	1437-1320	31-2-77	1726 ± 345
			Plaquemine, LA	Church & Main St.	70764	1540-1350	31-2-77	1219 ± 0
			Plaquemine, LA	LA 988 & Davis St.	70764	1255-1705	32-77	9 ± 7
			Plaquemine, LA	50 yd. East off LA 1N	70764	1430-1740	32-77	1590 ± 45
			Plaquemine, LA	East off LA 1	70764	1445-1755	32-77	399 ± 28
			Plaquemine, LA	Off LA 1	70764	1600-1015	32-3-77	3727 ± 1127
			Plaquemine, LA	Off LA 1	70764	1745-1015	32-3-77	3727 ± 1127
			Plaquemine, LA	Plaquemine Evergreen Plantation	70764	1250-1725	33-77	1556 ± 0
			Plaquemine, LA	Plaquemine Evergreen Plantation	70764	1325-1715	33-77	524 ± 61
			Plaquemine, LA	Plaquemine Evergreen Plantation	70764	1400-1630	33-77	416 ± 27
			Plaquemine, LA	Plaquemine Evergreen Plantation	70764	1705-1020	33-4-77	112 ± 56
			Geismar, LA	Corner of Hwy. 73 & 75	70734	1545-1503	59-60-77	683

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m³)
VI	1,2-dichloroethane (cont.)	107-06-2	Geismar, LA	Hwy. 73	70734	1155-1615	60-77	10,333
			Geismar, LA	Between Hwy. 30 & 73	70734	1215-1240	60-77	7,844
			Geismar, LA	Off LA 75	70734	1620-1537	59-60-77	232
			Geismar, LA	Hwy. 73	70734	1615-1220	60-1-77	4,689
			Geismar, LA	Off Hwy. 73	70734	1025-1240	61-77	1,555
			Geismar, LA	Off LA 75	70734	1620-1537	59-60-77	100
			Geismar, LA	Off Hwy. 75	70734	1330-1400	60-77	800
			Geismar, LA	Off Hwy. 30	70734	1603-1220	60-1-77	1,444
			Baton Rouge, LA	Off US 61 North	70807	1150-1110	62-3-77	137
			Baton Rouge, LA	Off unpaved, unmarked road	70807	1135-1130	62-3-77	712
			Baton Rouge, LA	Off US 61	70807	1220-1615	62-77	458
			Baton Rouge, LA	Off US 61	70807	1125-1545	63-77	585
			Baton Rouge, LA	Off unpaved, unmarked road	70807	1207-1237	63-77	78
			Baton Rouge, LA	Off US 61	70807	1235-1550	67-77	887
			Baton Rouge, LA	Off of Turning Basin Road	70807	1625-1215	67-8-77	731
			Baton Rouge, LA	Graveyard Area	70807	1640-1030	67-8-77	712
			Baton Rouge, LA	Mengel Rd.	70807	1330-1640	68-77	10,341
			Baton Rouge, LA	Off LA 61	70805	1400-1700	68-77	751
			Baton Rouge, LA	Off Mengel Rd.	70807	1650-1100	68-9-77	322 ± 0
			Baton Rouge, LA	Off LA 190	70807	1715-1115	68-9-77	3,229
			Baton Rouge, LA	Off Mengel Rd.	70807	1105-1505	69-77	2,000
			Baton Rouge, LA	Off LA 61	70805	1140-1550	69-77	1,522
			Baton Rouge, LA	LA 1 and LA 190	70807	1700-0900	69-70-77	5,024
			Baton Rouge, LA	Downwind of several petroleum facilities	70807	1530-0930	69-70-77	302
			Houston, TX	Aldine (Mail Rt.)	77037 or 9	0945-1245	173-77	T (444)
			Houston, TX	Clandon Dr.	77080	0630-0930	231-77	T (348)
			Houston, TX	Crawford at Polk	77002	0615-0915	292-77	209 ± 48
			Houston, TX	Aldine (Mail Rt.)	77037 or 9	1207-1510	293-77	T (258)

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	1,2-dichloroethane (cont.)	107-06-2	Houston, TX	Crawford at Polk	77002	1546-1853	294-77	T (258)
			Houston, TX	Clanton Dr.	77080	0607-0907	294-77	T (258)
			Houston, TX	Navigation Blvd.	77003 or 11	1730-0930	195-7-77	123 ± 10
			Houston, TX	Navigation Blvd.	77003 or 11	1000-0900	202-4-77	157 ± 36
			Houston, TX	Navigation Blvd.	77003 or 11	1030-0915	204-6-77	242 ± 0
			Lake Charles, LA	US 90	70601	1430 min	174-5-78	159
			Lake Charles, LA	US 90	70601	1430 min	174-5-78	283
			Lake Charles, LA	US 90	70601	1430 min	174-5-78	45
			Lake Charles, LA	US 90	70601	1430 min	174-5-78	21
			Lake Charles, LA	US 90	70601	1425 min	174-5-78	+
			Lake Charles, LA	US 90	70601	1476 min	174-5-78	1,243 ± 6
VI	1,1,1-trichloroethane	71-55-6	Houston, TX	5609 May St.	77076	1630-1630	320-1-74	
			Texas City, TX	-	77590	1415-1415	316-7-74	
			Houston, TX	May St.	77076	1245-2400	235-75	
			Pasadena, TX	Mae St.	77502	1430-2200	237-75	
			Pasadena, TX	Shaw Dr.	77506	2230-1017	238-9-75	
			Texas City, TX	Connie #10	77590	1200-2235	239-75	
			Pasadena, TX	C. H. Milby Park	77017	1005-1425	241-75	
			Houston, TX	Milby Park	77017	1670-1750	209-76	522
			Houston, TX	Steelman Ave. & El Buey Way	77017	1620-1750	209-76	900
			Pasadena, TX	Between industrial site & ship channel	77503	1430-1600	210-76	
			Pasadena, TX	Off Hwy. 225	77503	1430-1600	210-76	T
			Deer Park, TX	Off Hwy. 225	77536	1100-1200	211-76	144
			Deer Park, TX	Off Tidal Rd.	77536	1115-1215	212-76	1,000
			Deer Park, TX	Off Tidal Rd.	77536	1455-1555	211-76	400
			Deer Park, TX	Off Tidal Rd.	77536	1115-1215	212-76	400

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	1,1,1-trichloroethane	71-55-6	Freeport, TX	Off St. 352	77541	1342-1543	221-76	
			Freeport, TX	Off St. 352	77541	1348-1555	221-76	16,600
			Freeport, TX	Off St. 352	77541	1425-1508	221-76	15,200
			La Porte, TX	Off Hwy. 225	77571	1645-1833	224-76	3,889
			La Porte, TX	Off Hwy. 225	77571	1641-1824	224-76	27,700
			La Porte, TX	Off Hwy. 225	77571	1114-1252	225-76	T
			Plaquemine, LA	Bayou Rd.	70764	1437-1320	31-2-77	1100 ± 20
			Plaquemine, LA	Church & Main St.	70764	1540-1350	31-2-77	1820 ± 100
			Plaquemine, LA	LA 988 & Davis St.	70764	1255-1705	32-77	68 ± 8
			Plaquemine, LA	50 yd. East Off LA 1N	70764	1430-1740	32-77	1500 ± 20
			Plaquemine, LA	East off LA 1N	70764	1445-1755	32-77	430 ± 50
			Plaquemine, LA	Off LA 1	70764	1600-1015	32-3-77	2680 ± 0
			Plaquemine, LA	Off LA 1	70764	1745-1015	32-3-77	8760 ± 1160
			Plaquemine, LA	Plaquemine Evergreen Plantation	70764	1250-1725	33-77	1556 ± 0
			Plaquemine, LA	Plaquemine Evergreen Plantation	70764	1325-1715	33-77	524 ± 61
			Plaquemine, LA	Plaquemine Evergreen Plantation	70764	1400-1630	33-77	416 ± 27
			Plaquemine, LA	Plaquemine Evergreen Plantation	70764	1705-1020	33-9-77	112 ± 56
			Geismar, LA	Corner of Hwy. 73 & 75	70734	1545-1503	59-60-77	T
			Geismar, LA	Vulcan Rd.	70734	1630-1550	59-60-77	250
			Geismar, LA	Hwy. 73	70734	1155-1615	60-77	200
			Geismar, LA	Between	70734	1215-1240	60-77	200
			Geismar, LA	Off LA 75	70734	1620-1537	59-60-77	75
			Geismar, LA	Hwy. 73	70734	1615-1220	60-1-77	175
			Geismar, LA	Off	70734	1025-1240	61-77	400
			Geismar, LA	Off LA 75	70734	1330-1400	60-77	80
			Geismar, LA	Off Hwy. 30	70734	1603-1220	60-1-77	675

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	1,1,1-trichloroethane (cont.)	71-55-6	Baton Rouge, LA	Off US 61 North	70807	1150-1110	62-3-77	178
			Baton Rouge, LA	Off unpaved, unmarked road	70807	1207-1237	63-77	178
			Baton Rouge, LA	Off of Turning Basin Rd.	70807	1625-1215	67-8-77	200
			Baton Rouge, LA	Graveyard Area	70807	1640-1030	67-8-77	178
			Baton Rouge, LA	Mengel Rd.	70807	1330-1640	68-77	222
			Baton Rouge, LA	Off Mendel Rd.	70807	1650-1100	68-9-77	78 ± 24
			Baton Rouge, LA	Choctaw Rd. & Pholox St.	70805	1215-1610	69-77	200
			Baton Rouge, LA	LA 1 and LA 190	70807	1700-0900	69-70-77	167
			El Dorado, AK	Hwy. 167	71730	1330-1530	264-76	
			El Dorado, AK	Hwy. 167	71730	1325-1524	264-76	
			El Dorado, AK	Parker's Chapel Water Tower	71730	2130-0930	268-9-76	
			El Dorado, AK	Hwy. 167	71730	1140-1415	265-76	
			El Dorado, AK	Hwy. 167	71730	1140-1411	265-76	
			El Dorado, AK	Hwy. 167	71730	1140-1415	265-76	
			Baton Rouge, LA	Devil's Swamp		1935-1430	132-4-77	500 ± 83
			Baton Rouge, LA	Devil's Swamp		1515-1530	134-6-77	2.250 ± 1.750
			Baton Rouge, LA	Devil's Swamp		1535-1400	136-8-77	T
			Baton Rouge, LA	Devil's Swamp		1400-0900	138-40-77	T
			Liberty Mounds, OK	District Water Works	74047	0355-0355	191-(2)-77	T (417)
			Tulsa, OK	2nd & Elwood	74103	0600-0900	264-77	T (334)
			Vera, OK	-	74083	1400-1500	264-77	T (334)
			Liberty Mounds, OK	District Water Wc[illegible]	74047	0600-0900	264-77	T (454)
			Houston, TX	Aldine (Mail Rt.)	77037 or 9	0945-1245	173-77	T (555)
			Houston, TX	Clanton Dr.	77080	0745-1050	179-77	708 ± 41
			Houston, TX	Clanton Dr.	77080	0630-0930	231-77	533 ± 116

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	1,1,1-trichloroethane (cont.)	71-55-6	Houston, TX	Aldine (Mail Rt.)	77037 or 9	0630-0930	232-77	995 ± 5
			Houston, TX	Crawford at Polk	77002	0615-0915	292-77	T (334)
			Houston, TX	Aldine (Mail Rt.)	77037 or 9	1207-1510	293-77	T (533)
			Houston, TX	Crawford at Polk	77002	1546-1853	294-77	T (334)
			Houston, TX	Clanton Dr.	77080	0607-0907	294-77	T (334)
			Houston, TX	Navigation Blvd.	77003 or 11	1730-0930	195-7-77	367 ± 33
			Houston, TX	Navigation Blvd.	77003 or 11	1000-0900	202-4-77	235 ± 59
			Houston, TX	Navigation Blvd.	77003 or 11	1030-0915	204-6-77	T (470)
			Houston, TX	Navigation Blvd.	77003 or 11	0915-0945	206-8-77	T (334)
			Houston, TX	Navigation Blvd.	77003 or 11	1000-1015	208-10-77	T (454)
			El Paso, TX			1150-1245	99-101-78	
			El Paso, TX			1150-1245	99-101-78	
			El Paso, TX			1218-1330	99-101-78	
			El Paso, TX	Hwy. 10	79902	1015-1145	115-7-78	
			El Paso, TX	Hwy. 10	79902	1015-1145	115-7-78	
			El Paso, TX	Hwy. 10	79902	0918-1235	115-7-78	
			El Dorado, AK	Off Hwy. 15	71730	1329-1257	138-9-78	
			El Dorado, AK	Off Hwy. 15	71730	1329-1257	138-9-78	
			El Dorado, AK	Off Hwy. 15	71730	1329-1257	138-9-78	
			Lake Charles, LA	US 90	70601	1430 min	174-5-78	238
			Lake Charles, LA	US 90	70601	1430 min	174-5-78	78
			Lake Charles, LA	US 90	70601	1430 min	174-5-78	88
			Lake Charles, LA	US 90	70601	1430 min	174-5-78	111
			Lake Charles, LA	US 90	70601	1425	174-5-78	32
			Lake Charles, LA	US 90	70601	1476	174-5-78	317 ± 22

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	allyl bromide	106-95-6	El Dorado, AK	Hwy. 15	71730	1330-1523	264-76	70
			El Dorado, AK	Hwy. 15	71730	1330-1525	264-76	T
			El Dorado, AK	Hwy. 15	71730	1330-1530	264-76	29.7
			El Dorado, AK	Hwy. 15	71730	1200-1420	268-76	8.4
			El Dorado, AK	Hwy. 15	71730	1018-1818	268-76	T
			El Dorado, AK	Hwy. 15	71730	1145-1824	268-76	8
			El Dorado, AK	Hwy. 15	71730	1745-0945	268-9-76	2.5
			El Dorado, AK	Parker's Chapel Water Tower	71730	2130-0930	268-9-76	24.8
			El Dorado, AK	Hwy. 167	71730	1140-1415	265-76	T
			El Dorado, AK	Hwy. 167	71730	1140-1614	265-76	3.2
			El Dorado, AK	Hwy. 167	71730	1120-1625	276-76	32.9
			Magnolia, AK	Hwy. 79	71753	1427-1726	267-76	9.4
			Magnolia, AK	Hwy. 79	71753	1427-1726	267-76	15.8
			El Dorado, AK	Hwy. 15	71730	1242-1315	199-200-77	T
			El Dorado, AK	Hwy. 15	71730	1256-1110	200-1-77	T
			El Dorado, AK	Hwy. 15	71730	1137-1130	201-2-77	T
			El Dorado, AK	Hwy. 15	71730	1152-1150	201-2-77	T
			El Dorado, AK	Hwy. 15	71730	1042-0845	202-3-77	T
			El Dorado, AK	Hwy. 15	71730	1138-0910	202-3-77	T
VI	carbon tetrachloride	56-23-5	Pasadena, TX	Shaw Dr.	77506	1130-1130	315-6-74	
			Baytown, TX	7200 Bayway Dr.	77520	1630-1630	317-8-74	
			Texas City, TX	-	77590	1415-1415	316-7-74	
			Houston, TX	5609 May St.	77076	1630-1630	320-1-74	
			Houston, TX	May St.	77076	1245-2400	235-75	
			Pasadena, TX	Mae St.	77502	1430-2200	237-75	
			Pasadena, TX	Shaw Dr.	77506	1000-1000	238-9-75	
			Texas City, TX	Connie #10	77590	1200-2235	239-75	
			Texas City, TX	Connie #10	77590	2235-1155	239-40-75	
			Pasadena, TX	C. H. Milby Park	77017	1005-1425	241-75	
			Houston, TX	Milby Park	77017	1670-1750	209-76	238
			Houston, TX	Off Goodyear Rd.	77017	1510-1515	209-76	114
			Houston, TX	Steelman Ave. & El Buey Way	77017	1620-1750	209-76	T

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	carbon tetrachloride (cont.)	56-23-5	Pasadena, TX	Between industrial site and ship channel	77503	1430-1600	210-76	T
			Pasadena, TX	Off Hwy. 225	77503	1430-1600	210-76	146
			Deer Park, TX	Off Tidal Rd.	77536	1100-1200	211-76	846
			Deer Park, TX	Off Hwy. 225	77536	1100-1200	211-76	T
			Deer Park, TX	Off Tidal Rd.	77536	1455-1555	211-76	T
			Deer Park, TX	Off Tidal Rd.	77536	1020-1035	212-76	T
			Deer Park, TX	Off Tidal Rd.	77536	1115-1215	212-76	T
			Deer Park, TX	Off Tidal Rd.	77536	1455-1555	211-76	276
			Deer Park, TX	Off Tidal Rd.	77536	1115-1215	212-76	69
			Freeport, TX	Off St. 352	77541	1342-1543	221-76	
			Freeport, TX	Off St. 352	77541	1348-1555	221-76	11,538
			Freeport, TX	Off St. 352	77541	1425-1508	221-76	T
			La Porte, TX	Off Hwy. 225	77571	1645-1833	224-76	T
			La Porte, TX	Off Hwy. 225	77571	1641-1824	224-76	1,230
			La Porte, TX	Off Hwy. 225	77571	1114-1252	225-76	T
			Plaquemine, LA	Bayou Rd.	70764	1437-1320	31-2-77	800 ± 800
			Plaquemine, LA	LA 988 & Davis St.	70764	1255-1705	32-77	20 ± 10
			Plaquemine, LA	Off LA 1	70764	1600-1015	32-3-77	T
			Plaquemine, LA	Off LA 1	70764	1745-1015	32-3-77	4,628 ± 1,100
			Plaquemine, LA	Plaquemine Evergreen Plantation	70764	1250-1725	33-77	335 ± 250
			Plaquemine, LA	Plaquemine Evergreen Plantation	70764	1325-1715	33-77	667 ± 200
			Plaquemine, LA	Plaquemine Evergreen Plantation	70764	1400-1630	33-77	277 ± 18
			Geismar, LA	Corner of Hwy. 73 and 75	70734	1545-1503	59-60-77	400
			Geismar, LA	Hwy	70734	1155-1615	60-77	1,433
			Geismar, LA	Vulcan Rd.	70734	1630-1550	59-60-77	1,133
			Geismar, LA	Between Hwy. 30 and 73	70734	1215-1240	60-77	300
			Geismar, LA	Off LA 75	70734	1620-1537	59-60-77	183

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	carbon tetrachloride (cont.)	56-23-5	Geismar, LA	Hwy. 73	70734	1615-1220	60-1-77	4,667
			Geismar, LA	Off Hwy. 73	70734	1025-1240	61-77	10,100
			Geismar, LA	Off LA 75	70734	1620-1537	59-60-77	300
			Geismar, LA	Off Hwy. 75	70734	1330-1400	60-77	286
			Geismar, LA	Off Hwy. 30	70734	1603-1220	60-1-77	2,633
			Baton Rouge, LA	Off US 61 North	70807	1150-1110	62-3-77	874
			Baton Rouge, LA	Off unpaved, unmarked road	70807	1135-1130	62-3-77	452
			Baton Rouge, LA	Off US 61	70807	1220-1615	62-77	289
			Baton Rouge, LA	Off unpaved, unmarked road	70807	1207-1237	63-77	74
			Baton Rouge, LA	Off US 61	70807	1235-1550	67-77	311
			Baton Rouge, LA	Off of Turning Basin Rd.	70807	1625-1215	67-8-77	592
			Baton Rouge, LA	Graveyard Area	70807	1640-1030	67-8-77	533
			Baton Rouge, LA	Mengel Rd.	70807	1330-1640	68-77	311
			Baton Rouge, LA	Off LA 61	70805	1400-1700	68-77	533
			Baton Rouge, LA	Off Mengel Rd.	70807	1650-1100	68-9-77	148 ± 0
			Baton Rouge, LA	Off LA 190	70807	1715-1115	68-9-77	429
			Baton Rouge, LA	Off Mengel Rd.	70807	1105-1505	69-77	163
			Baton Rouge, LA	Off LA 61	70805	1140-1550	69-77	119
			Baton Rouge, LA	Choctaw Rd. and Pholox St.	70805	1215-1610	69-77	74
			Baton Rouge, LA	LA 1 and LA 190	70807	1700-0900	69-70-77	1,037
			Baton Rouge, LA	Downwind of several petroleum facilities	70807	1530-0930	69-70-77	192
			El Dorado, AK	Hwy. 167	71730	1330-1530	264-76	
			El Dorado, AK	Hwy. 167	71730	1325-1524	264-76	
			El Dorado, AK	Ak. City Water Tower	71730	2000-0900	268-9-76	
			El Dorado, AK	Parker's Chapel Water Tower	71730	2130-0930	268-9-76	
			El Dorado, AK	Hwy. 167	71730	1140-1415	265-76	
			El Dorado, AK	Hwy. 167	71730	1140-1411	265-76	

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	carbon tetrachloride (cont.)	56-23-5	El Dorado, AK	Hwy. 167	71730	1140-1415	265-76	
			El Dorado, AK	Hwy. 167	71730	1140-1415	265-76	
			Baton Rouge, LA	Devil's Swamp		1935-1430	132-4-77	
			Baton Rouge, LA	Devil's Swamp		1515-1530	134-6-77	
			Baton Rouge, LA	Devil's Swamp		1535-1400	136-8-77	
			Baton Rouge, LA	Devil's Swamp		1400-0900	138-140-77	
			Liberty Mounds, OK	District Water Works	74047	0355-0355	191-(2)-77	T
			Tulsa, OK	2nd & Elwood	74103	0600-0600	192-(3)-77	T
			Liberty Mounds, OK	District Water Works	74047	0600-0900	264-77	T
			Tulsa, OK	2nd & Elwood	74103	0600-0900	264-77	T
			Vera, OK	-	74083	1400-1700	264-77	T
			Houston, TX	Aldine (Mail Rt.)	77037 or 9	0945-1245	173-77	T (154)
			Houston, TX	Clanton Dr.	77080	0745-1050	179-77	217 ± 63
			Houston, TX	Clanton Dr.	77080	0630-0930	231-77	T (125)
			Houston, TX	Aldine (Mail Rt.)	77037 or 9	0630-0930	232-77	T (125)
			Houston, TX	Crawford at Polk	77002	0615-0915	292-77	T (95)
			Houston, TX	Aldine (Mail Rt.)	77037 or 9	1207-1510	293-77	T (95)
			Houston, TX	Crawford at Polk	77002	1546-1853	294-77	T (95)
			Houston, TX	Clanton Dr.	77080	0607-0907	294-77	T (95)
			Houston, TX	Navigation Blvd.	77003 or 11	1730-0930	195-7-77	T (92)
			Houston, TX	Navigation Blvd.	77003 or 11	1000-0900	202-4-77	T (87)
			Houston, TX	Navigation Blvd.	77003 or 11	1030-0915	204-6-77	T (87)
			Houston, TX	Navigation Blvd.	77003 or 11	0915-0945	206-8-77	T (95)
			Houston, TX	Navigation Blvd.	77003 or 11	1000-1015	208-10-77	T (133)

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	carbon tetrachloride (cont.)	56-23-5	El Paso, TX			1150-1245	99-101-78	
			El Paso, TX			1218-1330	99-101-78	
			Lake Charles, LA	US 90	70601	1430 min	174-5-78	104
			Lake Charles, LA	US 90	70601	1430 min	174-5-78	68
			Lake Charles, LA	US 90	70601	1430 min	174-5-78	43
			Lake Charles, LA	US 90	70601	1430 min	174-5-78	63
			Lake Charles, LA	US 90	70601	1425 min	174-5-78	30
			Lake Charles, LA	US 90	70601	1476 min	174-5-78	132 ± 18
VI	1,2-dichloropropane	78-87-5	Geismar, LA	Vulcan Rd.	70734	1630-1550	59-60-77	1,163
			Geismar, LA	Between Hwy. 30 and 73	70734	1215-1240	60-77	121
			Geismar, LA	Hwy. 73	70734	1615-1220	60-1-77	71
			Geismar, LA	Off Hwy. 73	70734	1025-1240	61-77	39
			Geismar, LA	Off LA 75	70734	1620-1537	59-60-77	3,999
			Geismar, LA	Off Hwy. 30	70734	1603-1220	60-1-77	36
			Lake Charles, LA	US 90	70601	1476 min	174-5-78	23 ± 0
VI	trichloroethylene	79-01-6	Pasadena, TX	Shaw Dr.	77506	1130-1130	315-6-74	
			Baytown, TX	7200 Bayway Dr.	77520	1630-1630	317-8-74	
			Texas City, TX	-	77590	1415-1415	316-7-74	
			Pasadena, TX	Mae St.	77502	1430-2200	237-75	
			Pasadena, TX	Mae St.	77502	1000-1000	237-8-75	
			Pasadena, TX	Shaw Dr.	77506	2230-1017	238-9-75	
			Houston, TX	Milby Park	77017	1670-1750	209-76	75
			Houston, TX	Steelman Ave. & El Buey Way	77017	1620-1750	209-76	39
			Pasadena, TX	Between industrial site & ship channel	77503	1430-1600	210-76	76
			Pasadena, TX	Off Hwy. 225	77503	1430-1600	210-76	5,071
			Deer Park, TX	Off Hwy. 225	77536	1100-1200	211-76	321
			Freeport, TX	Off St. 352	77541	1342-1543	221-76	
			Freeport, TX	Off St. 352	77541	1348-1555	221-76	107
			Freeport, TX	Off St. 352	77541	1425-1508	221-76	200

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	trichloroethylene (cont.)	79-01-6	La Porte, TX	Off Hwy. 225	77571	1645-1833	224-76	T
			La Porte, TX	Off Hwy. 225	77571	1641-1824	224-76	43
			La Porte, TX	Off Hwy. 225	77571	1114-1252	225-76	T
			Plaquemine, LA	East Off LA 1	70764	1445-1755	32-77	
			Plaquemine, LA	Off LA 1	70764	1600-1015	32-3-77	
			Plaquemine, LA	Off LA 1	70764	1745-1015	32-3-77	
			Plaquemine, LA	Plaquemine Evergreen Plantation	70764	1250-1725	33-77	
			Plaquemine, LA	Plaquemine Evergreen Plantation	70764	1325-1715	33-77	
			Plaquemine, LA	Plaquemine Evergreen Plantation	70764	1705-1020	33-4-77	
			Geismar, LA	Corner of Hwy. 73 and 75	70734	1545-1503	59-60-77	
			Geismar, LA	Between Hwy. 30 & 73	70734	1215-1240	60-77	
			Baton Rouge, LA	Off US 61 North of Plant A	70807	1150-1110	62-3-77	
			Baton Rouge, LA	Off unpaved, unmarked road	70807	1207-1237	63-77	
			Baton Rouge, LA	Off of Turning Basin Road	70807	1625-1215	67-8-77	
			Baton Rouge, LA	Off Mengel Rd.	70807	1650-1100	68-9-77	
			Baton Rouge, LA	Off LA 190	70807	1715-1115	68-9-77	
			Baton Rouge, LA	Off LA 61	70805	1140-1550	69-77	
			El Dorado, AK	Parker's Chapel Water Tower	71730	2130-0930	268-9-76	
			Baton Rouge, LA	Devil's Swamp		1935-1430	132-4-79	T (132)
			Baton Rouge, LA	Devil's Swamp		1515-1530	134-6-77	T (172)
			Baton Rouge, LA	Devil's Swamp		1535-1400	136-8-77	T (132)
			Liberty Mounds, OK	District Water Works	74047	0600-0900	264-77	T
			Tulsa, OK	2nd & Elwood	74103	0600-0900	264-77	T
			Houston, TX	Clanton Dr.	77080	0745-1050	179-77	T (179)
			Houston, TX	Clanton Dr.	77080	0630-0930	231-77	T (132)

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	trichloroethylene (cont.)	79-01-6	Houston, TX	Aldine (Mail Rt.)	77037 or 9	0630-0930	232-77	158 ± 26
			Houston, TX	Crawford at Polk	77002	0615-0915	292-77	72 ± 28
			Houston, TX	Aldine (Mail Rt.)	77037 or 9	1702-1510	293-77	T
			Houston, TX	Crawford at Polk	77002	1546-1853	294-77	T (250)
			Houston, TX	Clanton Dr.	77080	0607-0907	294-77	T (250)
			Houston, TX	Navigation Blvd.	77003 or 11	1730-0930	195-7-77	T (100)
			Houston, TX	Navigation Blvd.	77003 or 11	1000-0900	202-4-77	T (100)
			Houston, TX	Navigation Blvd.	77003 or 11	1030-0915	204-6-77	130 ± 10
			Houston, TX	Navigation Blvd.	77003 or 11	0915-0945	206-8-77	T (100)
			Houston, TX	Navigation Blvd.	77003 or 11	1000-1015	208-10-77	T (135)
			El Paso, TX			1150-1245	99-101-78	
			El Paso, TX			1150-1245	99-101-78	
			El Paso, TX			1218-1330	99-101-78	
			El Paso, TX	Hwy. 10	79902	1015-1145	115-7-78	
			El Paso, TX	Hwy. 10	79902	1015-1145	115-7-78	
			El Paso, TX	Hwy. 10	79902	0918-1235	115-7-78	
			El Dorado, AK	Off Hwy. 15	71730	1329-1257	138-9-78	
			El Dorado, AK	Off Hwy. 15	71730	1329-1257	138-9-78	
			El Dorado, AK	Off Hwy. 15	71730	1329-1257	138-9-78	
			Lake Charles, LA	US 90	70601	1425	174-5-78	
			Lake Charles, LA	US 90	70601	1476	174-5-78	

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	bromodichloromethane	75-27-4	El Dorado, AK	Hwy. 15	71730	1200-1420	268-76	1.9
			El Dorado, AK	Hwy. 15	71730	1200-1420	268-76	9.6
			El Dorado, AK	Hwy. 15	71730	1200-1420	268-76	15
			El Dorado, AK	Hwy. 15	71730	1018-1818	268-76	T
			El Dorado, AK	Hwy. 15	71730	1145-1824	268-76	26.4
			El Dorado, AK	Hwy. 167	71730	1140-1411	265-76	6.4
			El Dorado, AK	Hwy. 167	71730	1140-1415	265-76	5.2
			Magnolia, AK	Hwy. 79	71753	1427-1726	265-76	3.4
			Magnolia, AK	Hwy. 79	71753	1422-1726	265-76	6.8
			El Dorado, AK	Hwy. 15	71730	1955-1420	198-9-77	T
			El Dorado, AK	Hwy. 15	71730	1139-1240	199-200-77	T
			El Dorado, AK	Hwy. 15	71730	1155-1305	199-200-77	T
			El Dorado, AK	Hwy. 15	71730	1256-1110	200-1-77	T
			El Dorado, AK	Hwy. 15	71730	1310-1121	200-1-77	T
			El Dorado, AK	Hwy. 15	71730	1347-1139	200-1-77	T
			El Dorado, AK	Hwy. 15	71730	1127-1047	201-2-77	T
			El Dorado, AK	Hwy. 15	71730	1137-1130	201-2-77	T
			El Dorado, AK	Hwy. 15	71730	1147-1143	201-2-77	T
			El Dorado, AK	Hwy. 15	71730	1115-0900	202-3-77	T
VI	1-chloro-2-bromoethane	107-04-0	El Dorado, AK	Hwy. 15	71730	1200-1420	268-76	2.8
			El Dorado, AK	Hwy. 15	71730	1200-1420	268-76	6.6
			El Dorado, AK	Hwy. 15	71730	1145-1824	268-76	13
			El Dorado, AK	Hwy. 15	71730	1745-0945	268-9-76	0.3
			El Dorado, AK	Hwy. 15	71730	1155-1305	199-200-77	73
			El Dorado, AK	Hwy. 15	71730	1242-1315	199-200-77	70
			El Dorado, AK	Hwy. 15	71730	1543-1352	199-200-77	34
			El Dorado, AK	Hwy. 15	71730	1514-1334	199-200-77	2.8
			El Dorado, AK	Hwy. 15	71730	1310-1121	200-1-77	T
			El Dorado, AK	Hwy. 15	71730	1118-1032	201-2-77	T
			El Dorado, AK	Hwy. 15	71730	1137-1130	201-2-77	T
			El Dorado, AK	Hwy. 15	71730	1147-1143	201-2-77	22
			El Dorado, AK	Hwy. 15	71730	1115-0900	202-3-77	T

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	1-chloro-2-bromoethane (cont.)	107-04-0	El Dorado, AK	Hwy. 15	71730	1150-0925	202-3-77	T
			Magnolia, AK	Hwy. 132	71753	1208-1100	213-4-77	445
			Magnolia, AK	Hwy. 132	71753	1150-1105	214-5-77	163
			Magnolia, AK	Hwy. 132	71753	1110-1045	214-5-77	1,089
			Magnolia, AK	Hwy. 132	71753	1230-0945	214-5-77	32
			Magnolia, AK	Hwy. 132	71753	1120-0846	215-6-77	304
			Magnolia, AK	Hwy. 132	71753	1100-0900	215-6-77	251
			Magnolia, AK	Hwy. 132	71753	1000-0820	215-6-77	403
			El Dorado, AK	Off Hwy. 15	71730	1329-1257	138-9-78	
			El Dorado, AK	Off Hwy. 15	71730	1329-1257	138-9-78	
VI	1,1,2-trichloroethane	79-00-5	Deer Park, TX	Off Tidal Rd.	77536	1100-1200	211-76	6,700
			Deer Park, TX	Off Tidal Rd.	77536	1115-1215	212-76	3,334
			Freeport, TX	Off St. 352	77541	1348-1555	221-76	T
			Freeport, TX	Off St. 352	77541	1425-1508	221-76	3,821
			Plaquemine, LA	Bayou Rd.	70764	1437-1320	31-2-77	580 ± 60
			Plaquemine, LA	East Off LA 1	70764	1445-1755	32-77	36 ± 0
			Plaquemine, LA	Off LA 1	70764	1600-1015	32-3-77	260 ± 18
			Plaquemine, LA	Off LA 1	70764	1745-1015	32-3-77	1840 ± 440
			Geismar, LA	Corner of Hwy. 73 and 75	70734	1545-1503	59-60-77	120
			Geismar, LA	Vulcan Rd.	70734	1630-1550	59-60-77	150
			Geismar, LA	Hwy. 73	70734	1155-1615	60-77	5,450
			Geismar, LA	Between Hwy. 30 and 73	70734	1215-1240	60-77	9,611
			Geismar, LA	Hwy.73	70734	1615-1220	60-1-77	6,900
			Geismar, LA	Off Hwy. 75	70734	1330-1400	60-77	320
			Baton Rouge, LA	Graveyard Area	70807	1640-1030	67-8-77	80
			Baton Rouge, LA	Off LA 61	70805	1400-1700	68-77	54
			Baton Rouge, LA	Downwind of several petroleum facilities	70807	1530-0930	69-70-71	533
VI	chlorodibromomethane	124-48-1	El Dorado, AK	Hwy. 15	71730	1150-0925	202-3-77	T
			El Dorado, AK	Off Hwy. 167	71730	1140-0945	203-4-77	8.4 ± 2.8
			El Dorado, AK	Off Hwy. 167	71730	1105-1015	203-4-77	T

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	chlorodibromomethane (cont.)	124-48-1	El Dorado, AK	Off Hwy. 167	71730	1220-1040	203-4-77	31
			El Dorado, AK	Off Hwy. 167	71730	1400-0945	204-5-77	T
			El Dorado, AK	Off Hwy. 167	71730	1020-1010	204-5-77	T
			El Dorado, AK	Off Hwy. 167	71730	1040-1025	204-5-77	22
			El Dorado, AK	Off Hwy. 167	71730	0940-1002	205-6-77	T
			El Dorado, AK	Off Hwy. 167	71730	0950-1017	205-6-77	23
			El Dorado, AK	Off Hwy. 167	71730	1055-1045	205-6-77	81
			Lake Charles, LA	US 90	70601	1430	174-5-78	147
			Lake Charles, LA	US 90	70601	1430	174-5-78	130
			Lake Charles, LA	US 90	70601	1430	174-5-78	96
			Lake Charles, LA	US 90	70601	1430	174-5-78	34
			Lake Charles, LA	US 90	70601	1425	174-5-78	64
			Lake Charles, LA	US 90	70601	1476	174-5-78	230 ± 74
VI	dichloropropane isomer(s)	142-28-9	Deer Park, TX	Off Hwy. 225	77536	1100-1200	211-76	T
			Deer Park, TX	Off Tidal Rd.	77536	1115-1215	212-76	2,586
			Freeport, TX	Off St. 352	77541	1342-1543	221-76	
			Freeport, TX	Off St. 352	77541	1348-1555	221-76	69
			Freeport, TX	Off St. 352	77541	1425-1508	221-76	1,478
			Plaquemine, LA	Bayou Rd.	70764	1437-1320	31-2-77	944 ± 172
			Plaquemine, LA	Church & Main St.	70764	1540-1350	31-2-77	735 ± 37
			Plaquemine, LA	LA 988 & Davis St.	70764	1255-1705	32-77	1015 ± 620
			Plaquemine, LA	East Off LA 1	70764	1445-1755	32-77	209 ± 4
			Plaquemine, LA	Off LA 1	70764	1600-1015	32-3-77	1363 ± 33
			Plaquemine, LA	Off LA 1	70764	1745-1015	32-3-77	2239 ± 136
			Plaquemine, LA	Plaquemine Evergreen Plantation	70764	1250-1725	33-77	T
VI	1,2-dibromoethane	106-93-4	El Dorado, AK	Hwy. 15	71730	1330-1530	264-76	81
			El Dorado, AK	Hwy. 15	71730	1330-1523	264-76	3.10 ± 0.8
			El Dorado, AK	Hwy. 15	71730	1330-1525	264-76	5.30
			El Dorado, AK	Hwy. 15	71730	1325-1524	264-76	133
			El Dorado, AK	Hwy. 15	71730	1200-1420	268-76	7.4
			El Dorado, AK	Hwy. 15	71730	1200-1420	268-76	1,107

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	1,2-dibromoethane (cont'd)	106-93-4	El Dorado, AK	Hwy. 15	71730	1200-1420	268-76	1,837
			El Dorado, AK	Hwy. 15	71730	1145-1824	268-76	430
			El Dorado, AK	Hwy. 15	71730	1740-0948	268-9-76	89
			El Dorado, AK	Hwy. 15	71730	1745-0945	268-9-76	500
			El Dorado, AK	Parker's Chapel Water Tower	71730	2130-0930	268-9-76	7.2
			El Dorado, AK	Hwy. 167	71730	1140-1415	265-76	1.7
			El Dorado, AK	Hwy. 167	71730	1140-1415	265-76	34
			El Dorado, AK	Hwy. 167	71730	1120-1625	265-76	T
			Magnolia, AK	Hwy. 79	71753	1427-1726	267-76	227
			Magnolia, AK	Hwy. 79	71753	1427-1726	267-76	174
			Magnolia, AK	Hwy. 79	71753	1422-1726	267-76	21.2
			Magnolia, AK	Hwy. 79	71753	1355-1903	267-76	20,250
			El Dorado, AK	Hwy. 15	71730	1955-1420	198-8-77	1.7
			El Dorado, AK	Hwy. 15	71730	1139-1240	199-200-77	95
			El Dorado, AK	Hwy. 15	71730	1155-1305	199-200-77	271,283
			El Dorado, AK	Hwy. 15	71730	1242-1315	199-200-77	2,408
			El Dorado, AK	Hwy. 15	71730	1543-1352	199-200-77	20
			El Dorado, AK	Hwy. 15	71730	1514-1334	199-200-77	T
			El Dorado, AK	Hwy. 15	71730	1256-1110	200-1-77	2.8
			El Dorado, AK	Hwy. 15	71730	1310-1121	200-1-77	8,092
			El Dorado, AK	Hwy. 15	71730	1321-1131	200-1-77	39.060
			El Dorado, AK	Hwy. 15	71730	1400-1157	200-1-77	3,352
			El Dorado, AK	Hwy. 15	71730	1347-1139	200-1-77	32,872
			El Dorado, AK	Hwy. 15	71730	1118-1032	201-2-77	T
			El Dorado, AK	Hwy. 15	71730	1127-1047	201-2-77	118
			El Dorado, AK	Hwy. 15	71730	1137-1130	201-2-77	896
			El Dorado, AK	Hwy. 15	71730	1152-1150	201-2-77	190
			El Dorado, AK	Hwy. 15	71730	1147-1143	201-2-77	35,056
			El Dorado, AK	Hwy. 15	71730	1042-0845	202-3-77	T
			El Dorado, AK	Hwy. 15	71730	1115-0900	202-3-77	1,056
			El Dorado, AK	Hwy. 15	71730	1138-0910	202-3-77	526
			El Dorado, AK	Hwy. 15	71730	1210-0950	202-3-77	T
			El Dorado, AK	Hwy. 15	71730	1150-0925	202-3-77	270

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m³)
VI	1,2-dibromomethane	106-93-4	El Dorado, AK	Off Hwy. 167	71730	1130-0925	203-4-77	493
			El Dorado, AK	Off Hwy. 167	71730	1140-0945	203-4-77	227 ± 45
			El Dorado, AK	Off Hwy. 167	71730	1205-1000	203-4-77	501
			El Dorado, AK	Off Hwy. 167	71730	1105-1015	203-4-77	45
			El Dorado, AK	Off Hwy. 167	71730	1220-1040	203-4-77	448
			El Dorado, AK	Off Hwy. 167	71730	0935-0925	204-5-77	T
			El Dorado, AK	Off Hwy. 167	71730	1400-0945	204-5-77	868
			El Dorado, AK	Off Hwy. 167	71730	1010-1000	204-5-77	T
			El Dorado, AK	Off Hwy. 167	71730	1020-1010	204-5-77	280
			El Dorado, AK	Off Hwy. 167	71730	1040-1025	204-5-77	120
			El Dorado, AK	Off Hwy. 167	71730	0940-1002	205-6-77	T
			El Dorado, AK	Off Hwy. 167	71730	0950-1017	205-6-77	T
			El Dorado, AK	Off Hwy. 167	71730	1005-1033	205-6-77	2,425
			El Dorado, AK	Off Hwy. 167	71730	1055-1040	205-6-77	342
			El Dorado, AK	Off Hwy. 167	71730	1010-1019	206-7-77	67
			El Dorado, AK	Off Hwy. 167	71730	1040-0840	206-7-77	193
			El Dorado, AK	Off Hwy. 167	71730	1055-0850	206-7-77	171
			Magnolia, AK	Hwy. 79	71753	1655-1000	207-8-77	2,957
			Magnolia, AK	Hwy. 79	71753	1708-1018	207-8-77	216
			Magnolia, AK	Hwy. 79	71753	0945-0845	208-9-77	818
			Magnolia, AK	Hwy. 79	71753	1005-0900	208-9-77	1,008
			Magnolia, AK	Hwy. 79	71753	1020-1000	208-9-77	1,411
			Magnolia, AK	Hwy. 79	71753	1055-1012	208-9-77	2,520
			Magnolia, AK	Hwy. 79	71753	0850-0845	209-10-77	1,638
			Magnolia, AK	Hwy. 79	71753	0915-0915	209-10-77	1,868
			Magnolia, AK	Hwy. 79	71753	1002-1005	209-10-77	26
			Magnolia, AK	Hwy. 79	71753	1035-0955	209-10-77	5,012
			Magnolia, AK	Hwy. 79	71753	0900-1125	210-1-77	3,791
			Magnolia, AK	Hwy. 79	71753	0925-1130	210-1-77	2,800
			Magnolia, AK	Hwy. 79	71753	1015-1150	210-1-77	356
			Magnolia, AK	Hwy. 79	71753	1000-1150	210-1-77	2,366

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	1,2-dibromoethane (cont.)	106-93-4	Magnolia, AK	Hwy. 132	71753	1055-0950	213-4-77	62
			Magnolia, AK	Hwy. 132	71753	1130-1030	213-4-77	462
			Magnolia, AK	Hwy. 132	71753	1208-1100	213-14-77	40,415
			Magnolia, AK	Hwy. 132	71753	1000-1005	214-5-77	1,509
			Magnolia, AK	Hwy. 132	71753	1150-1105	214-5-77	30,156
			Magnolia, AK	Hwy. 132	71753	1110-1045	214-5-77	62,484
			Magnolia, AK	Hwy. 132	71753	1230-0945	214-5-77	14,028
			Magnolia, AK	Hwy. 132	71753	1015-0830	215-6-77	179
			Magnolia, AK	Hwy. 132	71753	1035-0840	215-6-77	1,744
			Magnolia, AK	Hwy. 132	71753	1120-0846	215-6-77	30,172
			Magnolia, AK	Hwy. 132	71753	1100-0900	215-6-77	921
			Magnolia, AK	Hwy. 132	71753	1000-0820	215-6-77	59,438
			El Dorado, AK	Off Hwy. 15	71730	1329-1257	138-9-78	
			El Dorado, AK	Off Hwy. 15	71730	1329-1257	138-9-78	
			El Dorado, AK	Off Hwy. 15	71730	1329-1257	138-9-78	
VI	tetrachloroethylene	127-18-4	Baytown, TX	7200 Bayway Dr.	77520	1630-1630	317-8-74	
			Pasadena, TX	Shaw Dr.	77506	1130-1130	315-6-74	
			Texas City, TX	-	77590	1415-1415	316-7-74	
			Houston, TX	5609 May St.	77076	1630-1630	320-1-74	
			Houston, TX	May St.	77076	1245-2400	235-75	
			Pasadena, TX	Mae St.	77502	1430-2200	237-75	
			Pasadena, TX	Mae St.	77502	1000-1000	237-8-75	
			Pasadena, TX	Shaw Dr.	77506	1000-1000	238-9-75	
			Pasadena, TX	Shaw Dr.	77506	2230-1017	238-9-75	
			Texas City, TX	Connie #10	77590	1200-2235	239-75	
			Pasadena, TX	C. H. Milby Park	77017	1005-1425	241-75	
			Houston, TX	Milby Park	77017	1670-1750	209-76	29
			Houston, TX	Off Goodyear Rd.	77017	1510-1515	209-76	T
			Houston, TX	Steelman Ave. & El Buey Way	77017	1620-1750	209-76	21
			Pasadena, TX	Between industrial site and ship channel	77503	1430-1600	210-76	20

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	tetrachloroethylene (cont.)	127-18-4	Pasadena, TX	Off Hwy. 225	77503	1430-1600	210-76	18
			Pasadena, TX	Near Houston ship channel	77503	1430-1600	210-76	T
			Deer Park, TX	Off. Hwy 225	77536	1100-1200	211-76	T
			Deer Park, TX	Off Tidal Rd.	77536	1455-1555	211-76	2,019
			Deer Park, TX	Off Tidal Rd.	77536	1020-1035	212-76	75
			Deer Park, TX	Off Tidal Rd.	77536	1115-1215	212-76	68
			Deer Park, TX	Off Tidal Rd.	77536	1115-1215	212-76	72
			Freeport, TX	Off St. 352	77541	1342-1543	221-76	N.D.
			Freeport, TX	Off St. 352	77541	1348-1555	221-76	94
			Freeport, TX	Off St. 352	77541	1425-1508	221-76	1,585
			La Porte, TX	Off Hwy. 225	77571	1641-1824	224-76	83
			La Porte, TX	Off Hwy. 225	77571	1645-1833	224-76	17
			La Porte, TX	Off Hwy. 225	77571	1114-1252	225-76	T
			Plaquemine, LA	Bayou Rd.	70764	1437-1320	31-2-77	82 ± 20
			Plaquemine, LA	Church & Main St.	70764	1540-1350	31-2-77	977 ± 900
			Plaquemine, LA	LA 988 & Davis St.	70764	1255-1705	32-77	T
			Plaquemine, LA	50 yd. East Off LA 1N	70764	1430-1740	32-77	21 ± 0
			Plaquemine, LA	East off LA 1	70764	1445-1755	32-77	54 ± 3
			Plaquemine, LA	Off LA 1	70764	1600-1015	32-3-77	489 ± 70
			Plaquemine, LA	Off LA 1	70764	1745-1015	32-3-77	1224 ± 173
			Plaquemine, LA	Plaquemine Evergreen Plantation	70764	1250-1725	33-77	159 ± 170
			Plaquemine, LA	Plaquemine Evergreen Plantation	70764	1325-1715	33-77	27 ± 3
			Plaquemine, LA	Plaquemine Evergreen Plantation	70764	1400-1630	33-77	30 ± 10
			Plaquemine, LA	Plaquemine Evergreen Plantation	70764	1705-1020	33-4-77	16 ± 8
			Geismar, LA	Corner of Hwy. 73 and 75	70734	1545-1503	59-60-77	46

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m³)
VI	tetrachloroethylene (cont.)	127-18-4	Geismar, LA	Vulcan Rd.	70734	1630-1550	59-60-77	86
			Geismar, LA	Hwy. 73	70734	1155-1615	60-77	43
			Geismar, LA	Between Hwy. 30 and 73	70734	1215-1240	60-77	86
			Geismar, LA	Off LA 75	70734	1620-1537	59-60-77	11
			Geismar, LA	Hwy. 73	70734	1615-1220	60-1-77	100
			Geismar, LA	Off Hwy. 73	70734	1025-1240	61-77	36
			Geismar, LA	Off LA 75	70734	1620-1537	59-60-77	7
			Geismar, LA	Off Hwy. 75	70734	1330-1400	60-77	32
			Geismar, LA	Off Hwy. 30	70734	1603-1220	60-1-77	100
			Baton Rouge, LA	Off US 61	70807	1150-1110	62-3-77	85
			Baton Rouge, LA	Off unpaved, unmarked road	70807	1135-1130	62-3-77	34
			Baton Rouge, LA	Off US 61	70807	1220-1615	62-77	32
			Baton Rouge, LA	Off unpaved, unmarked road	70807	1207-1237	63-77	60
			Baton Rouge, LA	East side of LA 61	70807	1205-1630	67-77	11
			Baton Rouge, LA	Off US 61	70807	1235-1550	67-77	44
			Baton Rouge, LA	Off of Turning Basin Road	70807	1625-1215	67-8-77	53
			Baton Rouge, LA	Graveyard Area	70807	1640-1030	67-8-77	43
			Baton Rouge, LA	Mengel Road	70807	1330-1640	68-77	33
			Baton Rouge, LA	Off LA 61	70805	1400-1700	68-77	64
			Baton Rouge, LA	Off Mengel Rd.	70807	1650-1100	68-9-77	20 ± 0
			Baton Rouge, LA	Off LA 190	70807	1715-1115	68-9-77	364
			Baton Rouge, LA	Off Mengel Rd.	70807	1105-1505	69-77	13
			Baton Rouge, LA	Off LA 61	70805	1140-1550	69-77	47
			Baton Rouge, LA	Choctaw Rd. and Pholox St.	70805	1215-1610	69-77	17
			Baton Rouge, LA	LA 1 and LA 190	70807	1700-0900	69-70-77	250
			Baton Rouge, LA	Downwind of several petroleum facilities	70807	1530-0930	69-70-77	18
			El Dorado, AK	Hwy. 167	71730	1330-1530	264-76	
			El Dorado, AK	Hwy. 167	71730	1325-1524	264-76	

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	tetrachloroethylene (cont.)	127-18-4	El Dorado, AK	AK City Water Tower	71730	2000-0900	268-9-76	
			El Dorado, AK	Parker's Chapel Water Tower	71730	2130-0930	268-9-76	
			El Dorado, AK	Hwy. 167	71730	1140-1411	265-76	
			El Dorado, AK	Hwy. 167	71730	1140-1415	265-76	
			El Dorado, AK	Hwy. 167	71730	1140-1415	265-76	
			Baton Rouge, LA	Devil's Swamp		1935-1430	132-4-77	T (59)
			Baton Rouge, LA	Devil's Swamp		1535-1400	136-8-77	T (60)
			Baton Rouge, LA	Devil's Swamp		1535-1400	136-8-77	T (60)
			Liberty Mounds, OK	District Water Works	74047	0355-0355	191-(2)-77	T
			Tulsa, OK	2nd & Elwood	74103	0600-0600	192-(3)-77	T
			Liberty Mounds, OK	District Water Works	74047	0600-0900	264-77	T
			Tulsa, OK	2nd & Elwood	74103	0600-0900	264-77	T
			Vera, OK	-	74083	1400-1700	264-77	T
			Houston, TX	Aldine (Mail Rt.)	77037 or 9	0945-1245	173-77	T (55)
			Houston, TX	Clanton Dr.	77080	0745-1050	179-77	69 ± 8
			Houston, TX	Clanton Dr.	77080	0630-0930	231-77	T (79)
			Houston, TX	Crawford at Polk	77002	0615-0915	292-77	262 ± 77
			Houston, TX	Aldine (Mail Rt.)	77037 or 9	1207-1510	293-77	252 ± 130
			Houston, TX	Crawford at Polk	77002	1546-1853	294-77	250 ± 0
			Houston, TX	Clanton Dr.	77080	0607-0907	294-77	T (46)
			Houston, TX	Navigation Blvd.	77003 or 11	1730-0930	195-7-77	T (62)
			Houston, TX	Navigation Blvd.	77003 or 11	1000-0900	202-4-77	57 ± 4
			Houston, TX	Navigation Blvd.	77003 or 11	1030-0915	204-6-77	T (44)
			Houston, TX	Navigation Blvd.	77003 or 11	1000-1015	208-10-77	130 ± 26
			El Paso, TX			1150-1245	99-101-78	
			El Paso, TX			1150-1245	99-101-78	
			El Paso, TX			1280-1330	99-101-78	
			El Paso, TX	Hwy. 10	79902	1015-1145	115-7-78	

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	tetrachloroethylene (cont.)	127-18-4	El Paso, TX	Hwy. 10	79902	1015-1145	115-7-78	
			El Paso, TX	Hwy. 10	79902	0918-1235	115-7-78	
			El Dorado, AK	Off Hwy. 15	71730	1329-1257	138-9-78	
			El Dorado, AK	Off Hwy. 15	71730	1329-1257	138-9-78	
			El Dorado, AK	Off Hwy. 15	71730	1329-1257	138-9-78	
			Lake Charles, LA	US 90	70601	1430	174-5-78	
			Lake Charles, LA	US 90	70601	1430	174-5-78	
			Lake Charles, LA	US 90	70601	1430	174-5-78	
			Lake Charles, LA	US 90	70601	1430	174-5-78	
			Lake Charles, LA	US 90	70601	1425	174-5-78	
			Lake Charles, LA	US 90	70601	1476	174-5-78	
VI	chlorobenzene	108-90-7	Pasadena, TX	Shaw Dr.	77506	1130-1130	315-6-74	
			Baytown, TX	7200 Bayway Dr.	77520	1630-1630	317-8-74	
			Texas City, TX	-	77590	1415-1415	316-7-74	
			Pasadena, TX	Mae Street	77502	1430-2200	237-75	
			Pasadena, TX	Mae Street	77502	1000-1000	237-8-75	
			Pasadena, TX	Shaw Dr.	77506	1000-1000	238-9-75	
			Pasadena, TX	Shaw Dr.	77506	2230-1017	238-9-75	
			Texas City, TX	Connie #10	77590	1200-2235	239-75	
			Pasadena, TX	C. H. Milby Park	77017	1005-1425	241-75	
			Deer Park, TX	Off Tidal Rd.	77536	1455-1555	211-76	
			Deer Park, TX	Off Tidal Rd.	77536	1115-1215	212-76	
			Freeport, TX	Off St. 352	77541	1342-1543	221-76	
			La Porte, TX	Off Hwy. 225	77571	1645-1833	224-76	
			La Porte, TX	Off Hwy. 225	77571	1641-1824	224-76	
			La Porte, TX	Off Hwy. 225	77571	1114-1252	225-76	
			Plaquemine, LA	Plaquemine Evergreen Plantation	70764	1250-1725	33-77	29 ± 10
			Geismar, LA	Hwy. 73	70734	1155-1615	60-77	93
			Geismar, LA	Between Hwy. 30 & 73	70734	1215-1240	60-77	93
			Geismar, LA	Off LA 75	70734	1620-1537	59-60-77	T
			Geismar, LA	Hwy. 73	70734	1615-1220	60-1-77	143
			Geismar, LA	Off Hwy. 73	70734	1025-1240	61-77	171

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	chlorobenzene	108-90-7	Geismar, LA	Off LA 75	70734	1620-1537	59-60-77	900
			Baton Rouge, LA	Choctaw Rd. & Pholox St.	70805	1215-1610	69-77	10
			Baton Rouge, LA	Devil's Swamp		1935-1430	132-4-77	T (153)
			Baton Rouge, LA	Devil's Swamp		1515-1530	134-6-77	T (128)
			Houston, TX	Clanton Dr.	77080	0630-0930	231-77	T (283)
			Houston, TX	Crawford at Polk	77002	0615-0915	292-77	T (132)
			Houston, TX	Aldine (Mail Rt.)	77037 or 9	1207-1510	293-77	T (168)
			Houston, TX	Crawford at Polk	77002	1546-1853	294-77	T (224)
			Houston, TX	Clanton Dr.	77080	0607-0907	294-77	T (139)
			Houston, TX	Navigation Blvd.	77003 or 11	1000-0900	202-4-77	T (132)
			Houston, TX	Navigation Blvd.	77003 or 11	1030-0915	204-6-77	T (132)
			Houston, TX	Navigation Blvd.	77003 or 11	0915-0945	206-8-77	125 ± 0
			Houston, TX	Navigation Blvd.	77003 or 11	1000-1015	208-10-77	52
			El Dorado, AK	Off Hwy. 15	71730	1329-1257	138-9-78	
			El Dorado, AK	Off Hwy. 15	71730	1329-1257	138-9-78	
			El Dorado, AK	Off Hwy. 15	71730	1329-1257	138-9-78	
			Lake Charles, LA	US 90	70601	1430	174-5-78	17
			Lake Charles, LA	US 90	70601	1430	174-5-78	29
			Lake Charles, LA	US 90	70601	1425	174-5-78	7
VI	bromoform	75-25-2	Pasadena, TX	Shaw Dr.	77506	1130-1130	315-6-74	
			Texas City, TX	-	77590	1415-1415	316-7-74	
			Houston, TX	5609 May St.	77076	1630-1630	320-1-74	
			Houston, TX	May St.	77076	1245-2700	235-75	
			Pasadena, TX	Mae St.	77502	1000-1000	237-8-75	
			Pasadena, TX	Shaw Dr.	77506	1000-1000	238-9-75	
			El Dorado, AK	Hwy. 15	71730	1330-1523	264-76	T
			El Dorado, AK	Hwy. 15	71730	1200-1420	268-76	15.1

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	bromoform (cont.)	75-25-2	El Dorado, AK	Hwy. 15	71730	1200-1420	268-76	11.96
			El Dorado, AK	Hwy. 167	71730	1140-1411	265-76	26.4
			El Dorado, AK	Hwy. 167	71730	1140-1614	265-76	T
			El Dorado, AK	Hwy. 167	71730	1105-1742	265-76	4.0
			El Dorado, AK	Hwy. 15	71730	1139-1240	199-200-77	T
			El Dorado, AK	Hwy. 15	71730	1155-1305	199-200-77	25
			El Dorado, AK	Hwy. 15	71730	1242-1315	199-200-77	20
			El Dorado, AK	Hwy. 15	71730	1514-1334	199-200-77	22
			El Dorado, AK	Hwy. 15	71730	1256-1110	200-1-77	T
			El Dorado, AK	Hwy. 15	71730	1310-1121	200-1-77	T
			El Dorado, AK	Hwy. 15	71730	1321-1131	200-1-77	T
			El Dorado, AK	Hwy. 15	71730	1400-1147	200-1-77	T
			El Dorado, AK	Hwy. 15	71730	1347-1139	200-1-77	98
			El Dorado, AK	Hwy. 15	71730	1127-1047	201-2-77	T
			El Dorado, AK	Hwy. 15	71730	1137-1130	201-2-77	104
			El Dorado, AK	Hwy. 15	71730	1147-1143	201-2-77	37
			El Dorado, AK	Hwy. 15	71730	1115-0900	202-3-77	T
			El Dorado, AK	Hwy. 15	71730	1138-0910	202-3-77	22
			El Dorado, AK	Hwy. 15	71730	1210-0950	202-3-77	T
			El Dorado, AK	Hwy. 15	71730	1150-0925	202-3-77	T
			El Dorado, AK	Hwy. 167	71730	1140-0945	203-4-77	T
			El Dorado, AK	Hwy. 167	71730	1205-1000	203-4-77	T
			El Dorado, AK	Hwy. 167	71730	1400-0945	204-5-77	T
			El Dorado, AK	Hwy. 167	71730	1020-1010	204-5-77	T
			El Dorado, AK	Hwy. 167	71730	0940-1002	205-6-77	T
			El Dorado, AK	Hwy. 167	71730	1005-1033	205-6-77	T
			Magnolia, AK	Hwy. 132	71753	1208-1100	213-4-77	8
			Magnolia, AK	Hwy. 132	71753	1035-0845	215-6-77	380
			Magnolia, AK	Hwy. 132	71753	1000-0820	215-6-77	50
			El Dorado, AK	Off Hwy. 15	71730	1329-1257	138-9-78	
			El Dorado, AK	Off Hwy. 15	71730	1329-1257	138-9-78	
			El Dorado, AK	Off Hwy. 15	71730	1329-1257	138-9-78	
			Lake Charles, LA	US 90	70601	1430	174-5-78	309
			Lake Charles, LA	US 90	70601	1430	174-5-78	729
			Lake Charles, LA	US 90	70601	1430	174-5-78	265
			Lake Charles, LA	US 90	70601	1425	174-5-78	68
			Lake Charles, LA	US 90	70601	1476	174-5-78	637 ± 220

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	bromobenzene	108-86-1	El Dorado, AK	Hwy. 15	71730	1200-1420	268-76	20.7
			El Dorado, AK	Hwy. 15	71730	1200-1420	268-76	60
			El Dorado, AK	Hwy. 15	71730	1745-0945	268-9-76	25
			El Dorado, AK	Hwy. 167	71730	1105-1742	265-76	28
			El Dorado, AK	Hwy. 15	71730	1955-1420	198-9-77	53
			El Dorado, AK	Hwy. 15	71730	1155-1305	199-200-77	470
			El Dorado, AK	Hwy. 15	71730	1242-1315	199-200-77	3,842
			El Dorado, AK	Hwy. 15	71730	1543-1352	199-200-77	188
			El Dorado, AK	Hwy. 15	71730	1515-1334	199-200-77	1,131
			El Dorado, AK	Hwy. 15	71730	1310-1121	200-1-77	29
			El Dorado, AK	Hwy. 15	71730	1321-1131	200-1-77	4,276
			El Dorado, AK	Hwy. 15	71730	1400-1147	200-1-77	20
			El Dorado, AK	Hwy. 15	71730	1347-1139	200-1-77	51
			El Dorado, AK	Hwy. 15	71730	1118-1032	201-2-77	T
			El Dorado, AK	Hwy. 15	71730	1127-1047	201-2-77	280
			El Dorado, AK	Hwy. 15	71730	1137-1130	201-2-77	1,041
			El Dorado, AK	Hwy. 15	71730	1152-1150	201-2-77	22
			El Dorado, AK	Hwy. 15	71730	1147-1143	201-2-77	980
			El Dorado, AK	Hwy. 15	71730	1042-0845	202-3-77	4.5
			El Dorado, AK	Hwy	71730	1115-0900	202-3-77	428
			El Dorado, AK	Hwy. 15	71730	1138-0910	202-3-77	95
			El Dorado, AK	Hwy. 15	71730	1210-0950	202-3-77	4.8
			El Dorado, AK	Hwy. 15	71730	1150-0925	202-3-77	4.8
			Magnolia, AK	Hwy. 15	71753	1120-0846	215-6-77	23
			Magnolia, AK	Hwy. 132	71753	1100-0900	215-6-77	140
			Magnolia, AK	Hwy. 132	71753	1000-0820	215-6-77	35
			Magnolia, AK	Hwy. 132	71753	1038-0840	215-6-77	66
			El Dorado, AK	Off Hwy. 15	71730	1329-1257	138-9-78	
			El Dorado, AK	Off Hwy. 15	71730	1329-1257	138-9-78	
			El Dorado, AK	Off Hwy. 15	71730	1329-1257	138-9-78	
VI	m-dichlorobenzene	541-73-1	Houston, TX	5609 May St.	77076	1630-1630	320-1-74	
			Houston, TX	May St.	77076	1245-2400	235-75	

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	m-dichlorobenzene (cont.)	541-73-1	Pasadena, TX	Mae St.	77502	1430-2200	237-75	
			Pasadena, TX	Mae St.	77502	1000-1000	237-8-75	
			Pasedena, TX	Shaw Dr.	77506	1000-1000	238-9-75	
			Pasedena, TX	Shaw Dr.	77506	2230-1017	238-9-75	
			Texas City, TX	Connie #10	77590	1200-2235	239-75	
			Pasadena, TX	C.H. Milby Park	77017	1005-1425	241-75	
			Baton Rouge, LA	Devil's Swamp		1935-1430	132-4-77	T(102)
			Baton Rouge, LA	Devil's Swamp		1515-1530	134-6-77	T(85)
			Baton Rouge, LA	Devil's Swamp		1535-1400	136-8-77	T(87)
			Houston, TX	Aldine (Mail Rt)	77037 or 39	0945-1245	173-77	T(110)
			Houston, TX	Clanton Dr.	77080	0745-1050	179-77	T(127)
			Houston, TX	Clanton Dr.	77080	0630-0930	231-77	T(159)
			Houston, TX	Aldine (Mail Rt)	77037 or 9	0630-0930	232-77	T(179)
			Houston, TX	Crawford at Polk	77002	0615-0915	292-77	T(88)
			Houston, TX	Aldine (Mail Rt)	77037 or 9	1207-1510	293-77	T(112)
			Houston, TX	Crawford at Polk	77002	1546-1853	294-77	T(149)
			Houston, TX	Clanton Dr.	77080	0607-0907	294-77	T(92)
			Houston, TX	Navigation Blvd.	77003 or 11	1000-0900	202-4-77	T(88)
			Houston, TX	Navigation Blvd.	77003 or 11	1030-0915	204-6-77	T(88)
			Houston, TX	Navigation Blvd.	77003 or 11	0915-0945	206-8-77	T(83)
			Houston, TX	Navigation Blvd.	77003 or 11	1000-1015	208-10-77	T(87)
			El Paso, TX			1150-1245	99-101-78	
			El Paso, TX			1150-1245	99-101-78	
			El Paso, TX			1218-1330	99-101-78	
			El Paso, TX			1015-1145	115-7-78	
			El Paso, TX	Hwy. 10	79902	1015-1145	115-7-78	
			El Paso, TX	Hwy. 10	79902	0918-1235	115-7-78	

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	m-dichlorobenzene (cont.)	541-73-1	El Paso, TX	Hwy. 10	79902	1329-1257	138-9-78	
			El Dorado, AK	Off Hwy. 15	71730	1329-1257	138-9-78	
			El Dorado, AK	Off Hwy. 15	71730	1329-1257	138-9-78	
			El Dorado, AK	Off Hwy. 15	71730	1430	174-5-78	16
			Lake Charles, LA	US 90	70601	1430	174-5-78	27
			Lake Charles, LA	US 90	70601	1430	174-5-78	14
			Lake Charles, LA	US 90	70601	1430	174-5-78	7
			Lake Charles, LA	US 90	70601	1425	174-5-78	6
			Lake Charles, LA	US 90	70601	1476	174-5-78	15 ± 6
VI	o-dichlorobenzene	95-50-1	Pasadena, TX	Mae St.	77502	1000-1000	237-8-75	
			Pasadena, TX	Shaw Dr.	77506	1000-1000	238-9-75	
			Pasadena, TX	Shaw Dr.	77506	2230-1017	238-9-75	
			Pasadena, TX	C.H. Milby Park	77017	1005-1425	241-75	
			Baton Rouge, LA	Devil's Swamp		1935-1430	132-4-77	T(84)
			Baton Rouge, LA	Devil's Swamp		1515-1530	134-6-77	T(85)
			Baton Rouge, LA	Devil's Swamp		1535-1400	136-8-77	T(87)
			Tulsa, OK	2nd & Elwood	74103	0600-0600	192-(3)-77	T
			Tulsa, OK	2nd & Elwood	74103	0600-0900	264-77	T
			Houston, TX	Navigation Blvd.	77003 or 11	100-0900	202-4-77	T(88)
			Houston, TX	Navigation Blvd.	77003 or 11	0915-0945	206-8-77	T(83)
			Houston, TX	Navigation Blvd.	77003 or 11	1000-1015	206-10-77	T(86)
			Lake Charles, LA	US 90	70601	1430 min.	174-5-78	T
			Lake Charles, LA	US 90	70601	1430 min	124-5-78	T
VI	dichlorobenzene idomer(s)	541-73-1 or 95-50-1	Houston, TX	5609 May St.	77076	1630-1630	320-1-74	
			Pasadena, TX	Shaw Dr.	77506	1130-1130	315-6-74	
			Baytown, TX.	7200 Bayway Dr.	77520	1630-1630	317-8-74	
			Texas City, TX		77590	1415-1415	316-7-74	
			Texas City, TX	Connie #10	77590	2235-1155	239-40-75	
			Houston, TX	Milby Park	77017	1670-1750	209-76	
			Houston, TX	Steelman Ave.	77017	1620-1750	209-76	

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	dichlorobenzene isomer (s) (cont.)	541-73-1 or 95-50-1	Pasadena, TX	Off Hwy. 225	77503	1430-1600	210-76	
			Deer Park, TX	Off Tidal Rd.	77536	1100-1200	211-76	
			Deer Park, TX	Off Hwy. 225	77536	1100-1200	211-76	
			Freeport, TX	Off St. 352	77541	1342-1543	221-76	
			Freeport, TX	Off St. 352	77541	1348-1555	221-76	
			Freeport, TX	Off St. 352	77541	1425-1507	221-76	
			LaPorte, TX	Off Hwy. 225	77571	1645-1833	224-76	
			LaPorte, TX	Off Hwy. 225	77571	1641-1824	224-76	
			Plaquemine, LA	Off LA 1	70764	1600-1015	32-3-77	
			Plaquemine, LA	Off LA 1	70764	1745-1015	32-3-77	
			Plaquemine, LA	Plaquemine Evergreen Plantation	70764	1250-1725	33-77	
			Geismar, LA	Hwy. 73	70734	1155-1615	60-77	
			Geismar, LA	Between Hwy. 30 & 73	70734	1215-1240	60-77	
			Geismar, LA	Off LA 75	70734	1620-1537	59-60-77	
			El Dorado, AK	Off Hwy. 15	71730	1330-1524	264-76	
			Liberty Mounds, OK	District Water Works	74047	0355-0355	191-(2)-77	81 ± 39
			Tulsa, OK	2nd, & Elwood	74103	0600-0600	192-(3)-77	T
			Tulsa, OK	2nd, & Elwood	74103	0600-0900	264-77	T
VI	1,3-hexachlorobutadiene	87-68-3	Deer Park, TX	Off Tidal Rd.	77536	1455-1555	211-76	334
			Deer Park, TX	Off Tidal Rd	77536	1115-1215	212-76	2,066
			Deer Park, TX	Off Tidal Rd	77536	1115-1215	212-76	25
			Freeport, TX	Off St. 325	77541	1342-1543	221-76	13.3
			Freeport, TX	Off St. 325	77541	1348-1555	221-76	8.3
			La Porte, TX	Off Hwy. 225	77571	1641-1824	224-76	T
			La Porte, TX	Off Hwy. 225	77571	1114-1252	224-76	T
			Plaquemine, LA	Off LA 1	70764	1600-1015	32-3-77	18 ± 3
			Plaquemine, LA	Off LA 1	70764	1745-1015	32-3-77	37 ± 15
			Baton Rouge, LA	Off LA 61	70805	1140-1550	69-77	23
			Baton Rouge, LA	Downwind of several petroleum facilities	70807	1530-0930	69-70-77	117

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	dichlorobutane isomer(s)		Plaquemine, LA	Bayou Rd.	70764	1437-1320	31-2-77	153 ±70
			Plaquemine, LA	Church and Main St.	70764	1540-1350	31-2-77	2,714 ± 2,000
			Plaquemine, LA	LA 988 & Davis St.	70764	1255-1705	32-77	71 ± 45
			Plaquemine, LA	Off LA 1	70764	1745-1015	32-3-77	1,392 ± 178
			Plaquemine, LA	Plaquemine Evergreen Plantation	70764	1325-1715	33-77	54 ± 25
			Baton Rouge, LA	Off US 61 North of Plant A	70807	1150-1110	62-3-77	193
			Baton Rouge, LA	Off Mengel Rd.	70807	1105-1505	69-77	13
VI	dibromochloropropane isomer(s)	96-12-8	El Dorado, AK	Hwy. 15	71730	1155-1305	199-200-77	1.4
			El Dorado, AK	Hwy. 15	71730	1242-1315	199-200-77	1.4
			El Dorado, AK	Hwy. 15	71730	1514-1334	199-200-77	T
			El Dorado, AK	Hwy. 15	71730	1256-1110	200-1-77	T
			El Dorado, AK	Hwy. 15	71730	1310-1121	200-1-77	T
			El Dorado, AK	Hwy. 15	71730	1321-1131	200-1-77	T
			El Dorado, AK	Hwy. 15	71730	1400-1147	200-1-77	T
			El Dorado, AK	Hwy. 15	71730	1347-1139	200-1-77	2.8
			El Dorado, AK	Hwy. 15	71730	1118-1032	201-2-77	T
			El Dorado, AK	Hwy. 15	71730	1147-1143	201-2-77	5.6
			El Dorado, AK	Hwy. 15	71730	1042-0845	202-3-77	T
			El Dorado, AK	Hwy. 15	71730	1150-0925	202-3-77	T
			El Dorado, AK	Hwy. 167	71730	1130-0925	203-4-77	93
			El Dorado, AK	Off Hwy. 167	71730	1140-0945	203-4-77	174
			El Dorado, AK	Off Hwy. 167	71730	1205-1000	203-4-77	7.8
			El Dorado, AK	Off Hwy. 167	71730	1105-1015	203-4-77	34
			El Dorado, AK	Off Hwy. 167	71730	1220-1040	203-4-77	14
			El Dorado, AK	Off Hwy. 167	71730	0935-0925	204-5-77	12
			El Dorado, AK	Off Hwy. 167	71730	1400-0945	204-5-77	187
			El Dorado, AK	Off Hwy. 167	71730	1010-1000	204-5-77	37
			El Dorado, AK	Off Hwy. 167	71730	1020-1010	204-5-77	32

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	dibromochloropropane isomer(s)		El Dorado, AK	Off Hwy. 167	71730	1040-1025	204-5-77	T
			El Dorado, AK	Off Hwy. 167	71730	0940-1002	205-6-77	T
			El Dorado, AK	Off Hwy. 167	71730	0950-1017	205-6-77	T
			El Dorado, AK	Off Hwy. 167	71730	1005-1033	205-6-77	T
			El Dorado, AK	Off Hwy. 167	71730	1055-1045	205-6-77	T
			El Dorado, AK	Off Hwy. 167	71730	1055-1040	205-6-77	T
			El Dorado, AK	Off Hwy. 167	71730	1040-0840	206-7-77	T
			El Dorado, AK	Off Hwy. 167	71730	1055-0850	206-7-77	T
			Magnolia, AK	Hwy. 132	71753	1055-0950	213-4-77	25
			Magnolia, AK	Hwy. 132	71753	1130-1030	213-4-77	75
			Magnolia, AK	Hwy. 132	71753	1208-1100	213-4-77	1,996
			Magnolia, AK	Hwy. 132	71753	1000-1005	214-5-77	99
			Magnolia, AK	Hwy. 132	71753	1150-1105	214-5-77	624
			Magnolia, AK	Hwy. 132	71753	1110-1045	214-5-77	6,653
			Magnolia, AK	Hwy. 132	71753	1230-0945	214-5-77	300
			Magnolia, AK	Hwy. 132	71753	1015-0830	215-6-77	36
			Magnolia, AK	Hwy. 132	71753	1035-0840	215-6-77	100
			Magnolia, AK	Hwy. 132	71753	1100-0900	215-6-77	188
			Magnolia, AK	Hwy. 132	71753	1000-0820	215-6-77	2,002
VI	1-chloro-2,3-dibromopropane	96-12-8	El Dorado, AK	Hwy. 15	71730	1330-1523	264-76	1.87
			El Dorado, AK	Hwy. 15	71730	1200-1420	268-76	T
			El Dorado, AK	Hwy. 167	71730	1140-1415	265-76	17
			El Dorado, AK	Hwy. 167	71730	1124-1625	265-76	6.5
			El Dorado, AK	Hwy. 167	71730	1120-1625	165-76	20.6

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	1,1-dibromo-2-chloropropane	96-12-8	El Dorado, AK	Hwy. 167	71730	1140-1415	265-76	2.6
VI	1,2- or 1,3-dibromo-propane	78-75-1 or 109-64-8	El Dorado, AK	Hwy. 167	71730	1140-1415	265-76	1.1
			El Dorado, AK	Hwy. 15	71730	1242-1315	199-200-77	T
			El Dorado, AK	Hwy. 15	71730	1127-1047	201-2-77	T
			El Dorado, AK	Hwy. 15	71730	1137-1130	201-2-77	T
			El Dorado, AK	Hwy. 15	71730	1147-1143	201-2-77	T
			El Dorado, AK	Hwy. 15	71730	1042-0845	202-3-77	T
			El Dorado, AK	Hwy. 15	71730	1210-0950	202-3-77	T
			El Dorado, AK	Hwy. 15	71730	1150-0925	202-3-77	T
			Magnolia, AK	Hwy. 132	71753	1000-1005	214-5-77	T
			Magnolia, AK	Hwy. 132	71753	1150-1105	214-5-77	T
			Magnolia, AK	Hwy. 132	71753	1110-1045	214-5-77	T
			Magnolia, AK	Hwy. 132	71753	1230-0945	214-5-77	T
			Magnolia, AK	Hwy. 132	71753	1015-0830	215-6-77	T
			Magnolia, AK	Hwy. 132	71753	1100-0900	215-6-77	T
			Magnolia, AK	Hwy. 132	71753	1000-0820	215-6-77	T

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	1,2-or 1,3-dibromopropane (cont.)	78-75-1 or 109-64-8	Magnolia, AK	Hwy. 132	71753	1000-1005	214-5-77	T
			Magnolia, AK	Hwy. 132	71753	1150-1105	214-5-77	T
			Magnolia, AK	Hwy. 132	71753	1110-1045	214-5-77	T
			Magnolia, AK	Hwy. 132	71753	1230-0945	214-5-77	T
			Magnolia, AK	Hwy. 132	71753	1015-0830	215-6-77	T
			Magnolia, AK	Hwy. 132	71753	1100-0900	215-6-77	T
			Magnolia, AK	Hwy. 132	71753	1000-0820	215-6-77	T
VI	dichlorodibromomethane		Pasadena, TX	Mac St.	77502	1000-1000	237-8-75	
			Pasadena, TX	Shaw Dr.	77506	1000-1000	238-9-75	
			El Dorado, AK	Hwy. 167	71730	1140-1411	265-76	7.2
			El Dorado, AK	Hwy. 167	71730	1124-1625	265-76	39.8
VI	chlorobromopropane isomer	109-70-6	El Dorado, AK	Hwy. 167	71730	1140-1415	205-76	T
			El Dorado, AK	Hwy. 167	71730	1120-1625	265-76	4
			El Dorado, AK	Hwy. 167	71730	1105-1742	265-76	83
			Magnolia, AK	Hwy. 79	71753	1422-1726	267-76	1.2
VI	1-chloro-3-bromopropane	109-70-6	El Dorado, AK	Hwy. 15	71730	1200-1420	268-76	23.7
			El Dorado, AK	Hwy. 15	71730	1740-0948	268-9-76	T
			El Dorado, AK	Hwy. 15	71730	1745-0945	268-9-76	T
			El Dorado, AK	Hwy. 167	71730	1140-1415	265-76	2.0
			El Dorado, AK	Hwy. 167	71730	1140-1614	265-76	T
			El Dorado, AK	Hwy. 167	71730	1120-1625	264-76	6.3
			Magnolia, AK	Hwy. 79	71753	1620-0935	207-8-77	T
			Magnolia, AK	Hwy. 79	71753	1708-1018	207-8-77	39
			Magnolia, AK	Hwy. 79	71753	0945-0845	208-9-77	482
			Magnolia, AK	Hwy. 79	71753	1005-0900	208-9-77	64
			Magnolia, AK	Hwy. 79	71753	1020-1000	208-9-77	241
			Magnolia, AK	Hwy. 79	71753	1055-1012	208-9-77	678
			Magnolia, AK	Hwy. 79	71753	0850-0845	209-10-77	36
			Magnolia, AK	Hwy. 79	71753	0915-0915	209-10-77	14
			Magnolia, AK	Hwy. 79	71753	1002-1005	209-10-77	T

(continued)

Table D4 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VI	1-chloro-3-bromo-propane (cont.)	109-70-6	Magnolia, AK	Hwy. 79	71753	1035-0955	209-10-77	T
			Magnolia, AK	Hwy. 79	71753	0900-1125	210-1-77	1,688
			Magnolia, AK	Hwy. 79	71753	0925-1130	210-1-77	20
			Magnolia, AK	Hwy. 79	71753	1000-1150	210-1-77	171
VI	1-chloro-3-bromo propene		El Dorado, AK	Hwy. 15	71730	1242-1315	199-200-77	T
			El Dorado, AK	Hwy. 15	71730	1256-1110	200-1-77	T
			El Dorado, AK	Hwy. 15	71730	1127-1047	201-2-77	T
			El Dorado, AK	Hwy. 15	71730	1115-0900	202-3-77	T
			El Dorado, AK	Hwy. 15	71730	1138-0910	202-3-77	T
			El Dorado, AK	Hwy. 15	71730	1150-0925	202-3-77	T
VI	dichloropropene isomer(s)	26952-23-8	Pasadena, TX	Off Hwy. 225	77503	1420-1600	210-76	
			Deer Park, TX	Off Tidal Rd.	77536	1100-1200	211-76	180
			Deer Park, TX	Off Tidal Rd.	77536	1100-1200	211-76	90
			Deer Park, TX	Off Tidal Rd.	77536	1100-1200	211-76	90
			Deer Park, TX	Off Tidal Rd.	77536	1020-1035	212-76	T,T
			Deer Park, TX	Off Tidal Rd.	77536	1115-1215	212-76	241
			Deer Park, TX	Off Tidal Rd.	77536	1115-1215	212-76	1,291
			Deer Park, TX	Off Tidal Rd.	77536	1115-1215	212-76	72
			Deer Park, TX	Off Tidal Rd.	77536	1115-1215	212-76	1,293
			Deer Park, TX	Off Tidal Rd.	77536	1115-1215	212-76	345
			Plaquemine, LA	Off LA 1	70764	1600-1015	32-3-77	106 ± 4
			Plaquemine, LA	Off LA 1	70764	1745-1015	32-3-77	261 ± 92
			Plaquemine, LA	Bayou Rd.	70764	1437-1320	31-2-77	10 ± 5
VI	1,3,5-trichloro-benzene	108-70-3	Pasadena, TX	C.H. Milby Park	77017	1005-1425	241-75	
VI	trichlorobenzene isomer(s)	12002-48-1	Houston, TX	Crawford at Polk	77002	1546-1853	294-77	T (55)
			Houston, TX	Clanton Dr.	77080	0607-0907	294-77	T (75)
			El Paso, TX			1150-1245	99-101-78	
			El Paso, TX			1150-1245	99-101-78	

Table D5. VAPOR-PHASE HALOGENATED CHEMICALS - EPA REGION VIII

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m³)
VIII	chloroform	67-66-3	Denver, CO	Eisenhower Tunnel		2024-0550	252-75	
			Denver, CO	16th Ave. & Park	80218	1200-1800	249-75	
			Magna, UT	-	84044	1010-1019	299-301-77	T(125)
			Magna, UT	-	84044	1045-1045	301-3-77	T(125)
			Magna, UT	-	84044	1045-1145	303-5-77	T(208)
			Magna, UT	-	84044	1115-1245	305-7-77	T(208)
			Grand Canyon, AZ	-	86023	0930-1030	332-3-77	
			Grand Canyon, AZ	-	86023	1030-1015	333-4-77	
			Grand Canyon, AZ	-	86023	1015-1015	334-5-77	
			Grand Canyon, AZ	-	86023	1015-1640	335-6-77	
			Grand Canyon, AZ	-	86023	1645-1613	336-7-77	
			Grand Canyon, AZ	-	86023	1510-1410	337-8-77	
			Grand Canyon, AZ	-	86023	1415-1500	338-9-77	
VIII	1,2-dichloroethylene	540-59-0	Magna, UT	-	84044	1000-0930	297-9-77	T(334)
			Magna, UT	-	84044	1045-1045	301-3-77	T(334)
			Magna, UT	-	84044	1045-1145	303-5-77	T(334)
			Grand Canyon, AZ	-	86023	1015-1640	335-6-77	260
VIII	carbon tetrachloride	56-23-5	Denver, CO	Eisenhower Tunnel		2024-0550	252-75	
			Denver, CO	16th Ave. & Park	80218	1200-1800	249-75	
			Magna, UT	-	84044	1000-0930	297-9-77	T(95)
			Magna, UT	-	84044	1010-1019	299-301-77	166 ±71
			Magna, UT	-	84044	1045-1045	301-3-77	118 ±23
			Magna, UT	-	84044	1045-1145	303-5-77	T(95)
			Magna, UT	-	84044	1115-1245	305-7-77	T(95)

(continued)

Table D5 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VIII	carbon tetrachloride (cont.)	56-23-5	Grand Canyon, AZ	-	86023	1030-1015	333-4-77	T(59)
			Grand Canyon, AZ	-	86023	1015-1640	335-6-77	T(59)
			Grand Canyon, AZ	-	86023	1645-1613	336-7-77	T(59)
			Grand Canyon, AZ	-	86023	1510-1410	337-8-77	T(59)
			Grand Canyon, AZ	-	86023	1415-1500	338-9-77	T(59)
VIII	1,1,1-trichloroethane	71-55-6	Denver, CO	Eisenhower Tunnel		2024-0550	252-75	
			Denver, CO	16th Ave.& Park	80218	1200-1800	249-75	
			Magna, UT	-	84044	1000-0930	297-9-77	T(334)
			Magna, UT	-	84044	1010-1019	299-301-77	T(334)
			Magna, UT	-	84044	1045-1045	301-8-77	T(334)
			Magna, UT	-	84044	1045-1145	303-5-77	T(334)
			Magna, UT	-	84044	1115-1245	305-7-77	T(334)
			Grand Canyon, AZ	-	86023	0930-1030	332-3-77	218 ±1
			Grand Canyon, AZ	-	86023	1030-1015	333-4-77	T(217)
			Grand Canyon, AZ	-	86023	1015-1015	334-5-77	T(217)
			Grand Canyon, AZ	-	86023	1015-1640	335-6-77	T(217)
			Grand Canyon, AZ	-	86023	1645-1613	336-7-77	T(217)
			Grand Canyon, AZ	-	86023	1510-1410	337-8-77	T(217)
			Grand Canyon, AZ	-	86023	1415-1500	338-9-77	T(217)
VIII	trichloroethylene	79-01-6	Denver, CO	Eisenhower Tunnel		2024-0550	252-75	
			Denver, CO	16th Ave.& Park	80218	1200-1800	249-75	
			Magna, UT	-	84044	1010-1019	299-301-77	T(100)
			Magna, UT	-	84044	1045-1045	301-3-77	T(100)
			Magna, UT	-	84044	1045-1145	303-5-77	T(100)

(continued)

Table D5 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VIII	trichloroethylene (cont.)	79-01-6	Magna, UT	-	84044	1115-1245	305-7-77	T(39)
			Grand Canyon, AZ	-	86023	0930-1030	332-3-77	T(130)
			Grand Canyon, AZ	-	86023	1030-1015	333-4-77	T(130)
			Grand Canyon, AZ	-	86023	1015-1015	334-5-77	T(130)
			Grand Canyon, AZ	-	86023	1015-1640	335-6-77	T(130)
			Grand Canyon, AZ	-	86023	1510-1410	337-8-77	T(130)
			Grand Canyon, AZ	-	86023	1415-1500	338-9-77	T(130)
VIII	tetrachloroethylene	127-18-4	Denver, CO	Eisenhower Tunnel		2024-0550	252-75	
			Denver, CO	16th Ave. & Park	80218	1200-1800	249-75	
			Magna, UT	-	84044	1000-0930	297-9-77	79 ±30
			Magna, UT	-	84044	1010-1019	299-301-77	80 ±31
			Magna, UT	-	84044	1045-1045	301-3-77	T(54)
			Magna, UT	-	84044	1045-1145	303-5-77	T(34)
			Grand Canyon, AZ	-	86023	0930-1030	332-3-77	T(234)
			Grand Canyon, AZ	-	86023	1015-1015	334-5-77	T(234)
			Grand Canyon, AZ	-	86023	1015-1640	335-6-77	T(234)
			Grand Canyon, AZ	-	86023	1645-1613	336-7-77	T(234)
			Grand Canyon, AZ	-	86023	1510-1410	337-8-77	T(234)
			Grand Canyon, AZ	-	86023	1415-1500	338-9-77	T(234)
VIII	chlorobenzene	108-90-7	Denver, CO	Eisenhower Tunnel		2024-0550	252-75	
			Denver, CO	16th Ave. & Park	80218	1200-1800	249-75	
			Magna, UT	-	84044	1000-0930	297-9-77	T(105)
			Magna, UT	-	84044	1010-1019	299-301-77	T(104)
			Magna, UT	-	84044	1045-1045	301-3-77	T(115)

(continued)

Table D5 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VIII	chlorobenzene (cont.)	108-90-7	Magna, UT	-	84044	1045-1145	303-5-77	T(104)
			Grand Canyon, AZ	-	86023	0930-1030	332-3-77	T(105)
			Grand Canyon, AZ	-	86023	1015-1015	334-5-77	T(105)
			Grand Canyon, AZ	-	86023	1645-1613	336-7-77	T(390)
			Grand Canyon, AZ	-	86023	1510-1410	337-8-77	T(390)
			Grand Canyon, AZ	-	86023	1415-1500	338-9-77	T(390)
VIII	m-dichlorobenzene	541-73-1	Denver, CO	Eisenhower Tunnel		2024-0550	252-75	
			Denver, CO	16th Ave. & Park	80218	1200-1800	249-75	
			Magna, UT	-	84044	1000-0930	297-9-77	T(70)
			Magna, UT	-	84044	1010-1019	299-301-77	T(69)
			Magna, UT	-	84044	1045-1045	301-3-77	T(77)
			Magna, UT	-	84044	1045-1145	303-5-77	T(69)
			Magna, UT	-	84044	1115-1245	305-7-77	T(77)
			Grand Canyon, AZ	-	86023	0930-1030	332-3-77	T(260)
			Grand Canyon, AZ	-	86023	1030-1015	333-4-77	260
			Grand Canyon, AZ	-	86023	1015-1015	334-5-77	T(260)
			Grand Canyon, AZ	-	86023	1015-1640	335-6-77	T(260)
			Grand Canyon, AZ	-	86023	1645-1613	336-7-77	T(260)
			Grand Canyon, AZ	-	86023	1510-1410	337-8-77	T(260)
			Grand Canyon, AZ	-	86023	1415-1500	338-9-77	T(260)
VIII	o-dichlorobenzene	95-50-1	Magna, UT	-	84044	1000-0930	297-9-77	
			Magna, UT	-	84044	1045-1045	301-3-77	
			Magna, UT	-	84044	1045-1145	303-5-77	

(continued)

Table D5 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VIII	vinylidene chloride	75-35-4	Grand Canyon, AZ	-	86023	0930-1030	332-3-77	
			Grand Canyon, AZ	-	86023	1015-1015	334-5-77	
			Grand Canyon, AZ	-	86023	1015-1640	335-6-77	
			Grand Canyon, AZ	-	86023	1645-1613	336-7-77	
			Grand Canyon, AZ	-	86023	1510-1410	337-8-77	
VIII	methylene chloride	75-09-2	Denver, CO	Eisenhower Tunnel		2024-0550	252-75	
			Denver, CO	16th Ave. & Park	80218	1200-1800	249-76	
			Magna, UT	-	84044	1000-0930	297-9-77	T(714)
			Magna, UT	-	84044	1010-1019	299-301-77	23,714 ±13,428
			Magna, UT	-	84044	1015-1045	301-3-77	6,071 ±785
			Magna, UT	-	84044	1045-1145	303-5-77	2,071 ±929
			Magna, UT	-	84044	1115-1245	305-7-77	5,714
			Grand Canyon, AZ	-	86023	0930-1030	332-3-77	
			Grand Canyon, AZ	-	86023	1030-1015	333-4-77	
			Grand Canyon, AZ	-	86023	1015-1015	334-5-77	
			Grand Canyon, AZ	-	86023	1015-1640	335-6-77	
			Grand Canyon, AZ	-	86023	1645-1613	336-7-77	
			Grand Canyon, AZ	-	86023	1510-1410	337-8-77	
			Grand Canyon, AZ	-	86023	1415-1500	338-9-77	
VIII	1,1-dichloroethane	75-34-3	Magna, UT	-	84044	1115-1245	305-77	T(334)

Table D6. VAPOR-PHASE HALOGENATED CHEMICALS - EPA REGION VII

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
VII	carbon tetrachloride	56-23-5	St. Louis, MO	4400 Lindell	63108	0650-1250	253-75	
VII	trichloroethylene	79-01-6	St. Louis, MO	4400 Lindell	63108	0650-1250	253-75	
			St. Louis, MO	4400 Lindell	63108	2212-0635	252-3-75	
			St. Ann, MO	St. Charles Rd. and Industrial Blvd.	63074	2035-0525	251-2-75	
VII	tetrachloroethylene	127-18-4	St. Louis, MO	4400 Lindell	63108	0650-1250	253-75	
			St. Louis, MO	4400 Lindell	63108	2212-0635	252-3-75	
			St. Ann, MO	St. Charles Rd. and Industrial Blvd.	63074	2035-0525	251-2-75	
VII	chlorobenzene	108-90-7	St. Louis, MO	4400 Lindell	63108	0640-1250	253-75	
			St. Louis, MO	4400 Lindell	63108	2212-0635	252-3-75	
			St. Ann, MO	St. Charles Rd. and Industrial Blvd.	63074	2035-0525	251-2-75	
VII	m-dichlorobenzene	548-73-1	St. Louis, MO	4400 Lindell	63108	0650-1250	253-75	
			St. Louis, MO	4400 Lindell	63108	2212-0635	252-3-75	
			St. Ann, MO	St. Charles Rd. and Industrial Blvd.	63074	2035-0525	251--2-75	
VII	o-dichlorobenzene	95-50-1	St. Louis, MO	4400 Lindell	63108	0650-1250	253-75	
VII	1,3,5-trichlorobenzene	108-70-3	St. Louis, MO	4400 Lindell	63108	0650-1250	252-75	

Table D7. VAPOR-PHASE HALOGENATED CHEMICALS - EPA REGION IX

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
IX	chloromethane	74-87-3	West Covina, CA	820 Phillips Ave.	91791	1000-1615	091-75	
			Garden Grove, CA	12281 Nelson St.	92640	0900-1630	094-75	
			Anaheim, CA	1700 W. Broadway	92805	0930-1700	093-75	
			Torrance, CA	20100 Normandie Ave.	90502	1357-1451	134-76	
IX	methylene chloride	75-09-2	Santa Monica, CA	2441 Arizona Ave.	90404	0850-1700	090-75	
			West Covina, CA	820 Phillips Ave.	91791	1000-1615	091-75	
			Santa Monica, CA	2441 Arizona Ave.	90404	1700-0800	090-1-75	
			Glendora, CA	840 E. Laurel	91740	1000-2100	092-75	
			Garden Grove, CA	12281 Nelson St.	92650	0900-1630	094-75	
			Anaheim, CA	1700 W. Broadway	92805	0930-1700	093-75	
			Anaheim, CA	1700 W. Broadway	92805	1730-0815	093-4-75	
			El Segundo, CA	Illinois St. with El Segundo Blvd.	90245	1329-1423	133-76	
			Torrance, CA	19146 Van Ness Blvd.	90504	1307-1412	134-76	
			Torrance, CA	15th S. Emery St.	90023	1534-1624	135-76	
			Dominquez, CA	2055 223 St.	90745	1322-1416	135-76	
			Upland, CA	-	91786	?	225-7-77	27,250 ± 17,750
			Upland, CA		91786		227-9-77	42,000 ± 32,000
			Upland, CA		91786		229-31-77	1,875 ±125
			Upland, CA		91786		231-3-77	7,750 ±250
			Upland, CA		91786	1400-0600	256-8-77	34,555 ± 14,333

(continued)

Table D7 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
IX	methylene chloride (cont.)	75-09-2	Upland, CA		91786	0600-0030	258-61-77	40,000 ±888
			Upland, CA		91786	0030-0030	262-4-77	44,250 ± 22,000
			Upland, CA		91786	0030-0600	264-6-77	37,750 ± 12,000
IX	chloroform	67-66-33	Santa Monica, CA	2441 Arizona Ave.	90404	0850-1700	090-75	
			West Covina, CA	820 Phillips Ave.	91791	1000-1616	091-75	
			Santa Monica, CA	2441 Arizona Ave.	90404	1700-0800	090-1-75	
			Glendora, CA	840 E. Laural	91740	1000-2100	092-75	
			Garden Grove, CA	12281 Nelson St.	92640	0900-1630	094-75	
			Anaheim, CA	1700 W. Broadway	92805	0930-1700	093-75	
			Anaheim, CA	1700 W. Broadway	92805	1730-0815	093-4-75	
			El Segundo, CA	Illinois St. with El Segundo Blvd.	90245	1329-1423	133-76	
			Torrance, CA	19146 Van Ness Blvd.	90504	1307-1412	134-76	
			Torrance, CA	20100 Normandie Ave.	90502	1357-1451	134-76	
			Los Angeles, CA	15th St. Emery St.	90023	1534-1624	135-76	
			Dominguez, CA	2055 223 St.	90745	1322-1416	135-76	
			Upland, CA	-	91786	?	225-7-77	4,423 ±1,346
			Upland, CA		91786		227-9-77	14,730 ± 13,115
			Upland, CA		91786		229-31-77	1,269 ±269
			Upland, CA		91786		231-3-77	1,615 ±769

(continued)

Table D7 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
IX	chloroform (cont.)	67-66-33	Upland, CA		91786	1400-0600	256-8-77	885 ± 448
			Upland, CA		91786	0600-0030	258-61-77	533 ± 99
			Upland, CA		91786	0030-0030	262-4-77	884 ± 654
			Upland, CA		91786	0030-0600	264-6-77	423 ± 38
IX	1,2-dichloroethane	107-06-2	Santa Monica, CA	2441 Arizona Ave.	90404	0850-1700	090-75	
			El Segundo, CA	Illinois St. with El Segundo Blvd.	90245	1329-1423	133-76	
			Torrance, CA	19146 Van Ness Blvd.	90504	1307-1412	134-76	
			Torrance, CA	20100 Normandie Ave.	90502	1357-1451	134-76	
			Los Angeles, CA	11th Emery St.	90023	1534-1624	135-76	
			Dominguez, CA	2055 223 St.	90745	1322-1416	135-76	14,814
			Upland, CA	-	91786	?	225-7-77	T(277)
			Upland, CA		91786		227-9-77	861 ± 140
			Upland, CA		91786		229-31-77	T(444)
			Upland, CA		91786		231-3-77	T(444)
			Upland, CA		91786	1400-0600	256-8-77	T(250)
			Upland, CA		91786	0600-0030	258-11-77	T(400)
			Upland, CA		91786	0030-0030	262-4-77	T(444)
			Upland, CA		91786	0030-0060	264-6-77	T(444)

(continued)

Table D7 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
IX	1,1,1-trichloroethane	71-55-6	West Covina, CA	820 Phillips Ave.	91791	1000-1615	091-75	
			Santa Monica, CA	2441 Arizona Ave.	90404	1700-0800	090-1-75	
			Glendora, CA	840 E. Laurel	91740	1000-2100	092-75	
			Garden Grove, CA	12281 Nelson St.	92640	0900-1630	094-75	
			Anaheim, CA	1700 W. Broadway	92805	0930-1700	093-75	
			Anaheim, CA	1700 W. Broadway	92805	1730-0815	093-4-75	
			El Segundo, CA	Illinois St. with El Segundo Blvd.	90245	1329-1423	133-76	
			Torrance, CA	19146 Van Ness Blvd.	90504	1307-1412	134-76	
			Torrance, CA	20100 Normandie Ave.	90502	1357-1451	134-76	
			Los Angeles, CA	15th S. Emery St.	90023	1534-1624	135-76	8,340
			Dominguez, CA	2055 223 St.	90745	1322-1416	135-76	
			Upland, CA	-	91786	?	225-7-77	805 ±538
			Upland, CA		91786		227-9-77	51,721 ± 10,055
			Upland, CA		91786		229-31-77	2,344 ±0
			Upland, CA		91786		231-3-77	589 ±10
			Upland, CA		91786	1400-0600	256-8-77	616 ±383
			Upland, CA		91786	0600-0030	258-61-77	T(454)
			Upland, CA		91786	0030-0030	262-4-77	944 ±166
			Upland, CA		91786	0030-0600	264-6-77	739 ±204

(continued)

Table D7 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
IX	carbon tetrachloride	56-23-5	Santa Monica, CA	2441 Arizona Ave.	90404	0850-1700	090-75	
			West Covina, CA	820 Phillips Ave.	91791	1000-1615	091-75	
			Santa Monica, CA	2441 Arizona Ave.	90404	1700-0800	090-1-75	
			Glendora, CA	840 E. Laurel	91740	1000-2100	092-75	
			Garden Grove, CA	12281 Nelson St.	92640	0900-1630	094-75	
			Anaheim, CA	1200 W. Broadway	92805	0930-1700	093-75	
			Anaheim, CA	1200 W. Broadway	92805	1730-0815	093-4-75	
			El Segundo, CA	Illinois St. with El Segundo Blvd.	90245	1329-1423	133-76	
			Torrance, CA	19146 Van Ness Blvd.	90504	1307-1412	134-76	
			Torrance, CA	2100 Normandie Ave.	90502	1357-1451	134-76	
			Los Angeles, CA	15th S. Emery St.	90023	1534-1624	135-76	
			Dominguez, CA	2055 223 St.	90745	1322-1416	135-76	
			Upland, CA		91786	?	225-7-77	T(153)
			Upland, CA		91786		227-9-77	1,461 ±0
			Upland, CA		91786		229-31-77	T(154)
			Upland, CA		91786		221-3-77	T(153)
			Upland, CA		91786	1400-0600	256-8-77	T(142)
			Upland, CA		91786	0600-0030	258-61-77	T(134)
			Upland, CA		91786	0030-0030	262-4-77	T(153)
			Upland, CA		91786	0030-0060	264-6-77	T(153)
IX	trichloroethylene	79-01-6	West Covina, CA	820 Phillips Ave.	91791	1000-1615	091-75	
			Santa Monica, CA	2441 Arizona Ave.	90404	1700-0800	090-1-75	
			Glendora, CA	840 E. Laurel	91740	1000-2100	092-75	
			Garden Grove, CA	12281 Nelson St.	92640	0900-1630	094-75	
			Anaheim, CA	1700 W. Broadway	92805	1730-0815	093-4-75	
			El Segundo, CA	Illinois St. with El Segundo, Blvd.	90245	1329-1423	133-76	
			Torrance, CA	19146 Van Ness Blvd.	90504	1307-1412	134-76	
			Torrance, CA	20100 Normandie Ave.	90502	1357-1451	134-76	
			Los Angeles, CA	15th S. Emery St.	90023	1534-1624	135-76	

(continued)

Table D7 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
IX	trichloroethylene (cont.)	79-01-6	Dominguez, CA	2055 223 St.	90745	1322-1416	135-76	9,210
			Upland, CA	-	91786	?	225-7-77	T(178)
			Upland, CA		91786		227-9-77	3,428 ± 2,143
			Upland, CA		91786		229-31-77	T(178)
			Upland, CA		91786		231-3-77	T(178)
			Upland, CA		91786	1400-0600	256-8-77	T(167)
			Upland, CA		91786	0600-0030	258-61-77	T(167)
			Upland, CA		91786	0030-0030	262-4-77	T(179)
			Upland, CA		91786	0030-0600	264-6-77	T(179)
IX	tetrachloroethylene	127-18-4	Santa Monica, CA	2441 Arizona Ave.	90404	0850-1700	090-75	
			West Covina, CA	820 Phillips Ave.	91791	1000-1615	091-75	
			Santa Monica, CA	2441 Arizona Ave.	90404	1700-0800	090-1-75	
			Glendora, CA	840 E. Laurel	91740	1000-2100	092-75	
			Garden Grove, CA	12281 Nelson St.	92640	0900-1630	094-75	
			Anaheim, CA	1700 W. Broadway	92805	0930-1700	093-75	
			Anaheim, CA	1700 W. Broadway	92805	1730-0815	093-4-75	
			El Segundo, CA	Illinois St. with El Segundo Blvd.	90245	1329-1423	133-76	
			Torrance, CA	19146 Van Ness Blvd.	90504	1307-1412	134-76	
			Torrance, CA	20100 Normandie Ave.	90502	1357-1451	134-76	
			Los Angeles, CA	15th S. Emery St.	90023	1534-1624	135-76	
			Dominguez, CA	2055 223 St.	90745	1322-1416	135-76	20,000
			Upland, CA	-	91786	?	225-7-77	1,260 ±458
			Upland, CA		91786		227-9-77	7,258 ±155

(continued)

Table D7 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
IX	tetrachloroethylene (cont.)	127-18-4	Upland, CA		91786		229-31-77	1,207 ±113
			Upland, CA		91786		231-3-77	70 ±23
			Upland, CA		91786	1400-0600	256-8-77	281 ±42
			Upland, CA		91786	0600-0030	258-61-77	89 ±29
			Upland, CA		91786	0030-0030	262-4-77	98 ±42
			Upland, CA		91786	0030-0600	264-6-77	188 ±56
IX	chlorobenzene	108-90-7	Santa Monica, CA	2441 Arizona Ave.	90404	0850-1700	090-75	
			West Covina, CA	820 Phillips Ave.	91791	1000-1615	091-75	
			Santa Monica, CA	2441 Arizona Ave.	90404	1700-0800	090-1-75	
			Glendora, CA	840 E. Laurel	91740	1000-2100	092-75	
			Garden Grove, CA	12281 Nelson St.	92640	0900-1630	094-75	
			Anaheim, CA	1700 W. Broadway	92805	0930-1700	093-75	
			El Segundo, CA	Illinois St. with El Segundo Blvd.	90245	1329-1423	133-76	
			Torrance, CA	19146 Van Ness Blvd.	90504	1307-1412	134-76	
			Torrance, CA	20100 Normandie Ave.	90502	1357-1451	134-76	
			Los Angeles, CA	15th S. Emery St.	90023	1534-1624	135-76	
			Dominguez, CA	2055 223 St.	90745	1322-1416	135-76	
			Upland, CA	-	91786	?	225-7-77	T(156)
			Upland, CA		91786		227-9-77	152 ±12
			Upland, CA		91786		229-31-77	T(136)

(continued)

Table D7 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
IX	chlorobenzene (cont.)	108-90-7	Upland, CA		91786		231-3-77	T(136)
			Upland, CA		91786	1400-0600	256-8-77	T(156)
			Upland, CA		91786	0600-0030	258-61-77	T(59)
			Upland, CA		91786	0030-0060	261-6-77	T(59)
IX	m-dichlorobenzene	541-73-1	West Covina, CA	820 Phillips Ave.	91791	1000-1615	091-75	
			Santa Monica, CA	2441 Arizona Ave.	90404	1700-0800	090-1-75	
			Glendora, CA	840 E. Laurel	91740	1000-2100	092-75	
			Garden Grove, CA	12281 Nelson St.	92640	0900-1630	094-75	
			Anaheim, CA	1700 W. Broadway	92805	0930-1700	093-75	
			Anaheim, CA	1700 W. Broadway	92805	1730-0815	093-4-75	
			El Segundo, CA	Illinois St. with El Segundo Blvd.	90245	1329-1423	133-76	
			Torrance, CA	20100 Normandie Ave.	90502	1357-1451	134-76	
			Los Angeles, CA	15th S. Emery St.	90023	1534-1624	135-76	
			Dominguez, CA	2055 223 St.	90745	1322-1416	135-76	
			Upland, CA	-	91786	?	225-7-77	144 ±10
			Upland, CA		91786		227-9-77	382 ±107
			Upland, CA		91786		229-31-77	87 ±22
			Upland, CA		91786		231-3-77	T(90)
			Upland, CA		91786	1400-0600	256-8-77	T(104)
			Upland, CA		91786	0600-0030	258-61-77	T(26)
			Upland, CA		91786	0030-0030	262-4-77	T(84)
			Upland, CA		91786	0030-0060	264-6-77	T(92)

(continued)

Table D7 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
IX	o-dichlorobenzene	95-50-1	Santa Monica, CA	2441 Arizona Ave.	90404	0850-1700	090-75	
			West Covina, CA	820 Phillips Ave.	91791	1000-1615	091-75	
			Santa Monica, CA	2441 Arizona Ave.	90404	1700-0800	090-1-75	
			Glendora, CA	840 E. Laurel	91740	1000-2100	092-75	
			Garden Grove, CA	12281 Nelson St.	92640	0900-1630	094-75	
			Anaheim, CA	1700 W. Broadway	92805	0930-1700	093-75	
			El Segundo, CA	Illinois St. with El Segundo Blvd.	90245	1329-1423	133-76	
			Torrance, CA	19146 Van Ness Blvd.	90504	1307-1412	134-76	
			Torrance, CA	20100 Normandie Ave.	90502	1357-1451	134-76	
			Los Angeles, CA	15th S. Emery St.	90023	1534-1624	135-76	
			Dominguez, CA	2055 223 St.	90745	1322-1416	135-76	
			Upland, CA	-	91786	?	225-7-77	T(104)
			Upland, CA		91786		227-9-77	20 ± 9
			Upland, CA		91786		229-31-77	T(90)
			Upland, CA		91786		231-3-77	T(90)
			Upland, CA		91786	1400-0600	256-8-77	T(104)
			Upland, CA		91786	0600-0300	258-61-77	T(26)
			Upland, CA		91786	0030-0030	262-4-77	T(34)
			Upland, CA		91786	0030-0600	264-6-77	T(92)
IX	bromoform	75-25-2	Glendora, CA	840 E. Laurel	91740	1000-2100	091-75	
			Anaheim, CA	1700 N. Broadway	92805	1730-0815	093-4-75	

(continued)

Table D7 (cont'd)

EPA Region	Compound	CASS #	Site	Address	Zip Code	Sampling Time	Calendar Day - Year	Conc. (ng/m^3)
IX	trichlorobenzene [isomer(s)]		West Covina, CA	820 Phillips Ave.	91797	1000-1615	091-75	
			Garden Grove, CA	12281 Nelson St.	92640	0900-1630	094-75	
			Anaheim, CA	1700 W. Broadway	92805	0930-1700	093-75	
			Torrance, CA	20100 Normandie Ave.	90502	1357-1451	134-76	
			Los Angeles, CA	15th S. Emery St.	90023	1534-1624	135-76	
			Dominguez, CA	2055 223 St.	90745	1322-1416	135-76	
			Upland, CA		91786		227-9-77	T(43)